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MANUSCRIPTS and related correspondence should be addressed to: Mary Huber, Editor. *Journal of Speech and Hearing Disorders*, Department of Speech, Los Angeles State College, Los Angeles 32, California.

SUBSCRIPTIONS and orders for back numbers should be addressed to: Kenneth O. Johnson, Business Manager, *Journal of Speech and Hearing Disorders*, American Speech and Hearing Association, 1001 Connecticut Avenue, N.W., Washington, D. C.

NEWS AND ANNOUNCEMENTS should be addressed to: Severina Nelson, Speech Clinic, University of Illinois, Champaign, Illinois.

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THIRTY-FOURTH ANNUAL CONVENTION

November 17, 18, 19, 1958, Hotel New Yorker, New York City

AMERICAN SPEECH AND HEARING ASSOCIATION

Plans are proceeding for the Thirty-fourth Annual Convention of the American Speech and Hearing Association, to be held at the Hotel New Yorker on November 17, 18 and 19, 1958.

A record number of abstracts has been received by the Program Committee, over twice the number received in any previous year. This fact gives promise of a high degree of excellence in the final program, and also will result in the Convention Program being truly representative of the activities and interests of the membership.

The preliminary program will not be printed in *The Journal of Speech and Hearing Disorders*, as in previous years, because of the change in publication dates. Instead, it is planned to send the final program to the entire membership in late fall. In this way the membership will be apprised of the broad nature of the program, both professional and social, in ample time to make plans for attendance.

A special effort has been made to enlarge the breadth of exhibits which will cover a broad spectrum of books, equipment and devices. Scientific exhibits will be presented. The exhibit area will be strategically located to facilitate attendance by the membership.

Pre-registration by mail is encouraged, as signs point toward a large convention. For those members who arrive early, registration facilities will be provided on Sunday, November 16, beginning during the late afternoon and continuing through the evening. Refreshments will be available during early registration.

An attractive social program has been planned by the Committee on Local Arrangements, including a cocktail hour and dance. An orchestra will be provided. Arrangements are being made for an outstanding speaker to address the convention, probably at an 'All-Association Luncheon.'

The management of the Hotel New Yorker is cooperating fully in making this a stimulating and enjoyable meeting. The hotel will be able to accommodate all members who wish rooms in the convention hotel.

The advantages of New York City as a convention city are well known. A number of open houses have been arranged. Plan to attend the convention and take advantage of its location.

—The Program Committee
Leo G. Doerfler, *Chairman*

Memo From ASHA National Office

To ASHA members and *Journal* subscribers:

Have you moved?
Your *Journals* will be sent to the old address unless you have informed National Office one month before moving day.

Your *Journals* will not be forwarded from your old address to your new address by the postmaster without guarantee of forwarding postage.

Are you going to move?
Notify:

1. ASHA National Office, 1001 Connecticut Avenue, N.W., Washington, D.C., one month before moving day.
2. Postmaster of your change of address and also guarantee payment of the forwarding postage.

Then your Journals *will move with you!*

In the future, book publishers, hearing aid manufacturers, and other commercial organizations will be permitted to purchase envelopes or labels addressed from the Association's membership list. This practice, common to many professional organizations, is being instituted to help defray the Association's mounting mailing costs. We anticipate that members will not interpret this practice as approval by the Association for any book or other product advertised in this way.

The ASHA is in the process of preparing an information bulletin on careers in Speech and Hearing which will be designed especially for distribution in the secondary schools. Since many colleges and universities offering majors in this field have published such career bulletins, it has been suggested that members send copies of these to Paul Knight, M. A., Suite 1718, 30 North Michigan Avenue, Chicago, 2, Illinois. Mr. Knight will appreciate any other suggestions that members might have in the preparation of this bulletin.

—Kenneth O. Johnson
Executive Secretary

Inside The Skin

Bryng Bryngelson

Ad-libbing before an audience is often dangerous. I recall with some embarrassment an experience in Detroit at the annual meeting of this association where a similar symposium was held. A thousand people were gathered to hear what five of the so-called authorities had to say anent stuttering. I happened to be one of the speakers. When it was over and my reflections became clear as to what had rolled out of my mouth, I realized I had spoken a number of fabrications. I have, therefore, come to you with a paper, which I shall read–hoping I might better avoid the consequences of an aftermath, distraught by a tingling super-ego.

In the light of this introduction, and having once been a minister of the gospel, I beg to quote from the Scriptures (*Proverbs 30:18*):

> There be three things which are too wonderful for me,
> Yea, four which I know not:
> The way of the eagle in the air,
> The way of a serpent upon a rock,
> The way of a ship in the midst of the sea,
> And the way of a man with a maid.

May I add–if Augur, the son of Jakey, had been perfectly honest, he would have added, 'Yea, even a fifth thing sometimes puzzles me, the way of a speaker with his audience'?

Bryng Bryngelson (Ph.D., State University of Iowa, 1931) is Professor of Speech and Director of Speech Pathology, University of Minnesota. This address was delivered at the 1955 ASHA Convention in Los Angeles.

I wish to report a conversation I had with Ole Olson, who called himself a stutterer. He was 35 years of age, one of six sons. He came from a family stock where there had been four stutterers. Ole was the only one in his immediate family who had trouble in getting his words out. He had stuttered since the onset of speech. His brothers were fluent talkers from the beginning.

The conversation reveals his clinical escapades and his thinking about some clinical philosophies, treatment and what he seemed to have learned along the way across the country from New York to California–his final resting place.

'Ole–you seem to be a mature rational person and your speech now seems to be quite fluent–tell me about your clinical sojourn in search for a cure.' (For the sake of time I shall eliminate Ole's tonic and clonic blocks.)

'First–I want to say that I still stutter. When I am fatigued, when I call a stranger on the telephone and when I get excited, I have a hell of a time getting my words out–especially when I tell a dirty story, which in my early training I was unable even to attempt. I'm not too used to it yet, but I hope to get there.

'My parents managed me according to the orthodox methods of child training. I was punished as often as were my brothers. I had, along with them, most of the severe childhood diseases. I felt I was no different from

the rest, except by comparison I knew when I entered school I had slow, interrupted articulation and a few facial grimaces.

'The teachers generally didn't understand *me*, or my condition which then became a problem. They refused calling on me for recitations. I was ridiculed by my playmates, and it wasn't long before I had to defend myself by becoming a "smart alec." This personality front didn't soften the sting of being a stutterer. But I managed to poke along academically until I could graduate from high school and enter college.'

'Where did you go to college?'

'I entered an eastern school, and it was there that I was first introduced to treatment. I was told diagnostically that my malady was caused by a lack of coordination of my speech muscles. The treatment consisted of phonetic drills, taking deep breaths and dancing. The last I was never good at, but it was to be the final test as to whether or not I could ever learn to speak more fluently.'

'How long did you take these lessons, Ole?'

'For four long years, and when I graduated I had learned enough phonetics so I could more easily substitute words that would finally come out without blocks. Dancing helped me meet females, about whom I had thought little—but they stuttered too, and I couldn't see two people, a male and female, both of whom stuttered, living communicatively together as man and wife. I guess I got the wrong idea, too, about women, since I think now of a woman as the quintescence of approbation of a defunct realism. I am still a bachelor.'

'Did you give up on your problem, Ole?'

'No, I heard that in the midwest they were treating stutterers. I landed in one place and was told that frequent feedings of thyroxin and a complete overhauling of my dentition would result in a cure. The director was so persuasive that I did try the first, but I kept my teeth the way they were. The only connection I could see with rearrangement of teeth was that I might be able to do my phonetic exercises better if one crooked incisor were straightened. But the therapist wanted more than that. He must have been in cahoots with the orthodontist —as the bill was to be terrific.'

'Well, how did the thyroxin work?'

'Oh, that wore off within two hours, and then my blocks returned. I got deathly ill and had to seek medical help. But, here too, the man seemed to be sincere. He was a member of the Am. Society, so he said, and I presume in good standing.'

'Well, did that discourage you?'

'No, I heard about a Swede who had boasted in the literature that at least stuttering need not be a handicap. I went to see him. He was open-minded about my problem and did put me through some emotional paces that raised hell with my guts. I literally sweated blood on those horrid social assignments. I had to sit by the hour in front of a full-size mirror and repeat voluntarily the first sound of every word. He called it "bouncing" —I would rather have done it on a trampoline. The Swede seemed to think my neural system was predisposed to behave the way it did when I spoke. He said something about me possessing a "constitutional variant" which I never did understand. I had to stop people on the street and tell them I stuttered, as if they didn't know it when I opened my mouth. I was an inveterate pipe smoker but could never ask for pipe cleaners, and

he stood right by me until I got it out. After awhile I got *by* by myself, but it was torture to learn how. This technique, the Swede said, was for the purpose of reorganizing my maladaptive reactions about my difference. These I had acquired early in life. Well, I still wasn't satisfied. I thought perhaps all my blocks could be eliminated, although this man told me, "Once a stutterer, always a stutterer." I believe that now but didn't then. After that I went to see another man; being a stubborn Swede myself, I thought I'd better continue until *all* my money was gone.'

'What did you learn from him, Ole?'

By this time Ole was quite exhausted from talking, but he went on:

'Now I learned that there isn't such a thing as stuttering—it is only a 10 letter word, and he called it "noise." Well, he was right in that, as I did create a lot of noise, especially on my plosives. When I asked him what caused my trouble, he said my mother made the diagnosis and gave it the label and from then on I had it. He said my ear was the receptor of what came out of my mother's mouth! I regretted I had ever had a mother or that I wasn't deaf. Of course, at 18 months I couldn't remember anything like that, and I wondered why my brothers weren't labelled—why pick on me? "Well," he said, "she couldn't handle more than one at a time, and you were the victim. Perhaps you were her favorite, and she wanted you to be absolutely perfect."

'When I asked what I should do to stop stuttering, he said, "You have to be semanticized." *That* was too much for me, for had I not gone through enough *'izing!* I was baptized, circumcised, phoneticized, thyroxinized and objectivized already. Could I stand another? But when he said in order to change my thinking (and that was in the process) it would take a whole year, I decided I couldn't stay that long. Then he said, "If you are as bright as I think you are, you might learn a lot in six months." This appealed to me, and it wasn't long before I learned how to index, evaluate, extensionalize, operate on delayed reactions and generally rely on my own authority. I became so multidimensional that I actually felt I had gained weight. My head did begin to swell. Certainly this man was a scholar and a gentleman. He had a delightful sense of humor. He knew a lot about the language of people and it was six months well spent.'

'Well, now you must have quit in your search.'

'No, believe it or not, I had one more step to take. That was to complete my jaunt across the country, and, California, here I came!

'It didn't take me long to learn that all new thoughts originate in California. One can start a new movement of any type on a moment's notice. The climate must have something to do with it. There was even a new prostration movement last August due to 110° temperature.'

'Tell me what happened to you in your last resort.'

'This story is too long to tell in one sitting. It develops like my therapy which was done in "sittings," or on occasions "lyings down"—and I had them too numerous to mention. My therapist, I had confidence in, as I knew of his various laboratory researches on stuttering. I read many of his publications. And, although he basically believes that the causative factors lie somewhere in the neural connections, not yet discovered, his treatment tends in the direction of a

total personality alteration by means of long and thorough analysis, so thorough that there is a lot of rotten stuff that comes out. But it was good for me.

'Say, Professor, I'm beginning to feel tired, and you look as if you need sleep, too, so why don't I stop here?'

'Oh, before you leave, Ole, is there anything you would want to say to us speech pathologists, as a result of your many and varied clinical experiences? We often forget to ask our clients for their wisdom, you know.'

'Thank you, sir, I shall be more than glad to speak my thoughts to you clinicians. We stutterers have grown in a matrix beclouded by doubt, suspicion and superstition. I have discovered very few talking primates who live entirely in the twentieth century as far as intelligence and civilization are concerned. Most of us still thrive on medieval mysticism. We have had a thorough bath in unwholesome, unworkable conditionings.

'Don't promise a "cure." We merely ask for that enrichment of personal worth which comes from having a cross to bear and knowing how to bear it. Stuttering without the handicap part of it can so easily become an asset, and that makes life worth living.

'Lighten your loads through cooperative thinking, drawing at the same time upon the knowledge of many areas of science; and when you speak, tell your listeners what prejudices of yours you are presenting. Then listeners, public and private, will understand what you mean, and unwholesome criticism and misunderstanding will be avoided.

'Remember, too, you are a talking primate, blessed with fluency and easy communication; but you are selfish and egotistic and perchance carry a few problems inside your *own* skin. You, as man, want certain results in your researches, and you will always get them. Therefore, look as openmindedly as you are able to, upon all findings, as truth may never be discovered, but the search should give you joy enough.

'Finally, I bespeak the fact that as I sojourned across the nation I have learned from my therapies what might be called three prerequisites to wholesome living, and anyone who could hold to them could travel around the world and return still a very healthy organism, yes, even still stuttering: (1) a "what the hell" attitude, (2) an iron stomach and (3) a nasty mind.'

'Thank you, Ole, I really ought to stop here, too; but I'm facing an audience and am expected to say something, much of which I confess is stimulated by your excellent account of yourself as a stuttering patient.'

Andrew Salter (*1*), in his book *Conditioned Reflex Therapy*, has made an indictment of man which seems acceptable to me. He says, in part, the human animal is inhibited. The natural basis of life is excitation. The creatures that survive in the jungle are those that slink, jump and kill. The polite, inhibited ones crouch behind a tree and are soon dead. The human species could not have survived if it were completely inhibited.

He also points out:

> Man, the talking primate, insists on clinging to his illusions despite overwhelming evidence to the contrary. We do not like to be reminded that evolulutionally speaking we are merely stomachs that grew more complicated. We are no better than our equipment and our equipment is still primitive. We are composed of jungle stuff, and ours is a monkey culture. Our troubles are caused by deviations into civilization, which is a fraud perpetrated on evolution. *Homo sapiens* has convinced himself that he is

a dancing bear. Consequently he can only lose his balance.

In the beginning was the gut, and the gut was law, and it is still so. It is the dog part of the human being that gets out of order, the part we keep telling ourselves we should be a little above, but never are. The dog part runs by dog rules. Everything is natural, under the circumstances. The twisted unhappy person is normal, for what happened to him. He only does what he can, because that is what he has been conditioned to do. Nothing is ever wrong within the person's 'should' department. It is the 'able to' department that causes the difficulty. We live up to our conditioning, not our ideals.

I wish to couch my remarks under two concepts, dividing man into two personages. I'll call them 'Pat' and 'Mike.'

'Pat' is man's essential nature, geographically located in the gut part of us—in the region of the waistline. It is his predatory, sadistic, craving, selfish, emotional and prejudicial equipment. 'Pat' is, by our culture, a most misunderstood, uneducated, emotionally unbalanced, uncivilized person inside our skin. He is always clamoring for favors and easy situations. He is the 'take all and give nothing' howler for attention. He has always had residence within, since the ooze turned into protoplasm—a compilation we value highly, as about 600 tons of it arrive on this planet every 24 hours. True, it is wrapped, this wonderful combination of mineral salts, colloids and water, in neat little packages called babies. Mothered at first in the warm and cozy matrix of a human womb for nine months, secure and content, free from guilt, repressions and loneliness. This very sensitive plant, full of undreamed potential for growth, change, maturation and freedom from frustrations and stultifying emotions. Now he enters a new matrix. At this point the troubles begin. His natural excitation is soon replaced by inhibition, bewilderment and a complete misunderstanding of his rightful place among other talking primates. Living in society surely necessitates inhibitions; but orthodox training has gone too far when it teaches children to be polite at all times, never to contradict or to interrupt anyone, never to be selfish and always to consider other people's feelings. As Salter said, 'A well adjusted person is like a housebroken dog. He has the basic inhibitions to permit him to live in society, but none extra to interfere with his happiness.'

'Pat' isn't supposed to be selfish, cry, give vent to his cravings or to speak his innermost thoughts. That aspect of living seems to belong only to parents. And the child being more or less a megaphone of his training never does anything to his parents that they didn't do to him in the first place. Is it any wonder that all villains have smiling faces!

'Pat' has a pal by the name of 'Mike.' His geographic location is in the brain case. He is the reasoner, the thinker, the manipulator of the sensory and filtering system. He has become, through early conditioning, the wise guy who knows all the answers—intelligent, educated and civilized, he calls himself.

The neurologic connections between 'Mike' and 'Pat' are too numerous to mention. But for the sake of this discourse, may I point out that 'Mike' is the defender of 'Pat' and, without 'Mike,' 'Pat' would still be completely in the predatory state? 'Pat' is excitatory; 'Mike' learns to inhibit him from the freedom of emotional release. That means that 'Mike,' although presumably intellectually honest, has become, emotionally, a liar.

The most scarifying aspect of 'Mike' is that he talks. He is the broadcaster of 'Pat's' cravings, and it seems he is always at the microphone – mouth open and jabbering all the time. He does it so easily, and he hears as easily as he talks. The sound carrying power of his words amounts to only .00001 watt, or .0000001.34 h.p. The audible threshold of his ear is .15 zeros 1 watt or .17 zeros 1.34 h.p. It's all too easy.

Is it any wonder when listening to political conventions that these words ring so true? 'I love my voice's sweetness, I love its limpid flow. I love to wind up my mouth, I love to hear it go.' Yes, this is a talking world, and 'Mike,' a talking primate, gets plenty of practice. His filtering system, while being able to sense but a small part of reality, is constantly pressed by the tensions and anxiety of 'Pat.' 'Mike's' talking projections, rationalizations and compensations are in full vogue due to the fact that 'Pat' in our culture is not accepted or understood. So it is by these twisted symbols of 'Mike' that we live, move and have our being. It is for this reason that what we call personality is merely a ruse, a mask for the truth or the real you or me inside our skin. One of the most energy consuming tasks we perform is trying to be sincere with our fellows. In spite of this expenditure we seldom ever really know anyone. It is this huge cemented bulwark of 'Mike's' defense that must first be broken through before 'Pat's' real problem can be understood.

What about the faltering articulation that two per cent of the 'Mikes' experience? I am not here interested in delving into the defense of any pet theories one might hold as to what accounts for the original deviation of neural flow in the process of an involuntary repetition or block. This is a panel on culture, matrix and remarks thereon, in relation to stuttering. So, what I have to offer may soothe the palates of a few and still leave many in doubt. Personally I think Ole was right when he said, 'Truth is fluid, transitory and undiscoverable. The search for it, however, will, for a long time to come, keep us on our toes.'

No one will question the fact that most of us have suffered from inhibitory training of our childhood and therefore can in part proclaim to be unfree. Society in general still places upon us too many restrictions that produce tensions in us. In other words we have problems–many of us are unhappy and wish for more acceptable freedom. But not all of us stutter. No, we talk all too fluently, and 'Pat' is so unhappy that his 'Mike' gets us embroiled in wholesale murder every quarter of a century, and the government in Washington has to plead for silence. 'The "war of words" is ended, now begins the "war of bombs," 'was the slogan after December 7, 1941.

We all know what a high premium our culture places on fluent speech and also the stigma it holds for stuttering. It is possible, therefore, that a stutterer has in addition to rather normal problems of adjustments a problem in battling the disapproval of his way of talking–producing in him more terrifying inhibitions. Certainly I'd say that any one of the 42% whose speech is broken at the time of speech onset, if he is sensitive, runs this risk of serious frustration and thus complicates his 'Pat' and 'Mike' to the point of defeated inhibitions and maladjustments. If talking primates generally are in their *own* way due to early conditioning, stutterers could certainly be more so.

Therapeutically I suggest we have

two problems: one with 'Pat,' whose need is an emotional catharsis, and one with 'Mike,' who needs a new intellectual adaptation. 'Mike' can respond to insight into his broadcasting and his defense of 'Pat'; and 'Pat' should have an opportunity to experience voluntarily what I call 'a patient's holiday,' a practiced emotional spree purposefully simulating all emotions. 'Pat' should have the chance to speak all his prejudices, selfishness and emotions, preferably in a group therapy situation. He should experience razz sessions, and name calling and be given an opportunity to live excitatorily. 'Mike's' intellectual orientation, which clinically can occur simultaneously, consists of willful practice in oralizing his compensations, rationalizations and projections. He voluntarily practices controls over 'Pat' and this turns the trick of making a clinician out of 'Mike' and a willing patient out of 'Pat.' This process can rid the stutterer of his inhibitory emotional reflexes and replace them with controlled, emotional excitatory reflexes, as Salter puts it. The stutterer can, if the clinical job is done thoroughly, play the part of both clinician and the patient, 'talking to himself.' The patient part of him will forever, as life moves on, be in need of help; and if the clinician part of him can maintain the adjusting program of the insight and wisdom he has learned, there should be less emotional turmoil and tension with subsequent reduction in peripheral myospasms. If you follow this program you have developed in your patient what I call a split-personality—a true voluntary cortically controlled schizophrenia.

The speaker-listener becomes an inside-the-patient's-skin matrix—an exciting though humble, self-respecting, confident and honest process. 'Your erstwhile sensitive plant can thus grow to be a big heap Injun,' as one of my patients said, prepared for the first time to live communicatively within the speaker-listener matrix of his fellow talking primates. In the above described clinical process you have developed your patient a step beyond the traditional goal of his being a well *adjusted* person. He has become wholly an *adjusting* individual who has learned the true meaning of 'Love thyself as thyself.'

I close with what Dr. Sullivan (2) said in part in his book *The Interpersonal Theory of Psychiatry:*

> In a world in which time is of the essence, in which we can scarcely defer great constructive changes until we shall have raised a new generation to political power, the most searching scrutiny of the dynamics of favorable change in personality becomes utterly imperative. Even if time were not of the essence, the imperative would be much the same, for we cannot 'jump a generation' and training for life as it is becoming, begins *in* and reaches very far forward from the primary group of the home. The less of parent's work that has to be corrected, the quicker man moves ahead; the surer our aid to parents in preparing their young more adequately for life, the more geometrically expanding will be the resulting good to the greater number.

A great work is still to be done in the speaker-listener's matrix of the home:

> The achievement of this exceedingly desirable goal is anything but easy and foolproof. The thinking-out of constructive, functionally coherent revisions of any one of the major cultures of the world, so that personal imperatives which derive from it—shall be less restrictive on understanding and more permissive of social progress; that, truly, is a task to which unnumbered groups of the skillful may well employ themselves.
>
> Begin; and let it be said of you, if there is any more history, that you labored nobly in the measure of man in the twentieth century of the scientific Western world.

I quote a Chinese proverb, 'To save face—keep the lower part of shut,' and this I now do.

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Orienting Reflex Disturbances In Central Auditory Or Language Handicapped Children

Henry J. Mark

William G. Hardy

In two recent papers Birch (*1*, *2*) theorized that phenomena as diverse as arrest of speech functions and interjectional speech in adult expressive aphasics, and perseveration, distractibility and other peculiarities of attention in brain-injured children, may be a consequence of inhibitory defects or disordered relations between the normal balance of excitation and inhibition. This theory also appears fruitful in the study of children with central auditory or language disorders where congenital pathology has given rise to major 'peculiarities of attention' in a single sense modality, *i.e.*, in relation to auditory stimuli. The most noticeable of these peculiarities is a disturbance in the orienting reflex (OR). The concept of an inhibitory defect associated with cns pathology is supported in this paper by showing that normal OR functions are inhibited relatively late in the life of many congenitally brain-damaged children.

Pavlov (7) was the first to describe the 'investigatory, focusing or orienting reflex.' Certain properties of the OR make it of special clinical interest in central auditory or language disorders: (1) The OR may be considered an unconditional response (*8*), a built-in mechanism which weakens or is extinguished (inhibited) with the repetition of a given stimulus. (2) The OR remains intact and relatively unchanged throughout the life of the healthy organism as a demonstrable unit of behavior. (3) The OR undergoes changes in cases of cns pathology (*7*, *8*) and under the influence of various chemical agents (*3*, *9*). The present discussion is intended to focus attention on the relation between disorganized learning processes and OR disturbances in cases of central auditory or language disorders.

Problem

The staff of the Johns Hopkins Hearing and Speech Center has long noted that a significant number of parents do not observe severe OR disturbances in their children until the second

Henry J. Mark (Sc.D., Johns Hopkins University, 1956) is Psychologist of the Hearing and Speech Center, Johns Hopkins Hospital, and Instructor in Otology and Laryngology and Environmental Medicine, Johns Hopkins University. William G. Hardy (Ph.D., Cornell University, 1943) is Director of the Hearing and Speech Center, Johns Hopkins Hospital, and Associate Professor in Otology and Laryngology and Environmental Medicine, Johns Hopkins University. The authors are indebted to Herbert G. Birch, Ph.D., and Lester Gliedman, M.D., for their critical reading of the manuscript. This research project was supported by a grant from the Alfred P. Sloan Foundation, Inc.

year of life or later. Even then the first alerting symptoms are often peculiarities in vocalization or lack of speech; the severe OR disturbance, which later becomes so obvious to parents and professional workers alike, often remains undetected for long periods. It became apparent in clinical work that differences in parental perceptiveness, number of older siblings, patient-age at time of interview and similar variables could not alone account for the large differences between cases in the first-symptom-ages. Such large differences were thought to be due to real differences between cases in the onset time of the OR dysfunction. It was decided to test the theory that a significant number of central auditory or language handicapped children have no apparent OR disturbances early in life and acquire such disturbances later. Attention was focused on (1) all information relevant to the first indication the parents had that anything whatever was wrong with their child, *i.e.*, the first-symptom-age, and (2) all anecdotal evidence bearing on early responses to sound.

Subjects

Subjects included in the study were those referred for psychological evaluation during a one year period and who were diagnosed as having central auditory or language disorders as a result of brain pathology thought to be present since birth. Cases excluded were those where the central auditory or language disorder was accompanied by other alerting signs of mental subnormality and three cases where the informants were obviously inadequate. Of the remaining 52 cases, seven had only minor auditory problems at the time of the examination and nine had no problems with regard to OR although they had other major auditory problems. This study reports on the 36 cases with unquestionable OR disturbances, characterized by failure to respond to newly introduced sound stimuli which elicit OR responses in normal subjects. Psychogalvanic skin resistance audiometry in addition to behavioral evidence clearly indicated in all cases that failure to respond to sound stimuli was not attributable to a peripheral hearing disorder. Patient-age at the time of interview ranged from two and one-half to 14 years, with a median of six and one-half years.

Further description of the sample of 36 children may be of interest, although it must be emphasized that no inferences about the universe of children with OR disturbances can be drawn from this highly selected group. The average performance IQ of the group was 97, with an SD of 15. Relatively high IQ's, of course, were expected by virtue of the fact that children with gross mental subnormality were not included in the study, because such subnormality might alert the parents to other dysfunction. As was expected, the group was characterized by great intra-individual variability ('scatter') of performance test and subtest scores, so that an average IQ score often was not as meaningful a measure of an individual's ability as the range of scores, or the mode or median score obtained. There was an equal number of boys and girls. No attempt was made to select cases on the basis of suspected etiologic factors. Histories of the prenatal and paranatal periods independently obtained by a number of professional workers from different disciplines provided no clues thought to be of possible etiologic significance

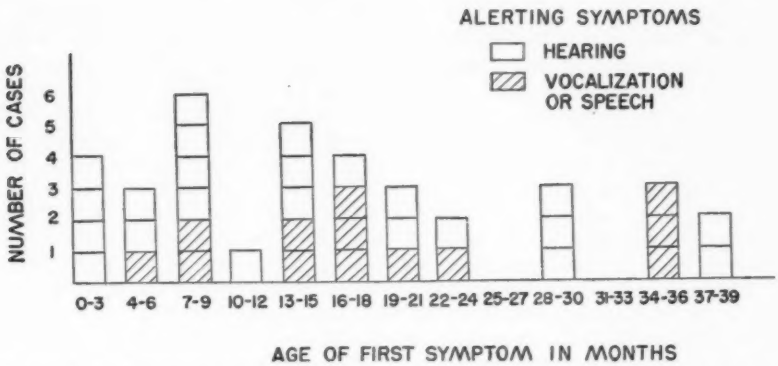

FIGURE 1. First-symptom-ages of 36 central auditory or language handicapped children with OR disturbances.

in 14 out of the 36 cases. In the majority of the remaining cases the finger of suspicion pointed at multiple etiologic factors. Bearing in mind the risk of committing the fallacy of the index case and recognizing that retrospective histories can at best point the finger of suspicion at possible etiologic factors, these factors are listed below in order of frequency of mention in the history, only to show that indeed no single factor appears to predominate: eight difficult delivery, five bleeding during gestation (usually in first trimester), five excessive maternal weight-gain during pregnancy, five postmaturity, three Rh incompatibility, three prematurity, three familial, three induced labor, two maternal rubella, two maternal toxemia, two maternal high blood pressure, two early false labor, two cord wrapped around neck, two resuscitation of neonate, two maternal chemotherapies, one early ruptured membranes and one forceful delay of spontaneous delivery.

Method

The first-symptom-age was carefully defined for the informants as that age when the informants 'had the slightest cloud of a suspicion that anything at all was wrong with the child,' rather than the age when they first consulted a psysician, or even when the parents first discussed the matter between themselves. Wherever possible, independent estimates of the first-symptom-age were obtained from all informants present, and the lowest age reported was taken as the first-symptom-age in each case. The character of the alerting symptom (speech or response to sound) was noted.

Results and Analysis

The case histories were examined for first-symptom-age, character of the alerting symptom and reported anecdotal evidence of early responses to sound. An attempt was made to assess the effect on the reported first-symptom-ages of patient-age at time of interview, number of older siblings and parental perceptiveness. Figure 1 gives the distribution by symptom (speech or hearing) of the reported first-symptom-ages of the 36 children

with severe OR disturbances at the time of examination. The cases are fairly evenly distributed over the first three years of life and, even in the late cases, speech dysfunction was the alerting symptom as often as auditory dysfunction. It is suggested that, if the OR disturbance had been present since birth in all cases, the distribution of first-symptom-ages would be more nearly a normal distribution.

There was no regression of patient-age at the time of the interview, or number of older siblings, on the reported first-symptom-ages; and it was assumed that these two variables did not enter as important sources of error in the reporting of first-symptom-ages. By inclusion in the study of only those children whose general development was grossly normal, no regression of child's IQ on reported first-symptom-age was expected, and none was found. Similarly sex and suspected etiologic factors were not expected to be related to the first-symptom-age or the nature of the alerting symptom and were not found to be related.

A rough measure of parental perceptiveness, a further source of possible reporting error, is available by examining the distribution of the first-symptom-ages where speech rather than auditory dysfunction was the first alerting symptom (but where a severe OR disturbance was of course manifest at the time of the interview). It is clear that the early first-symptom-ages were given by 'alert' parents (such as the mother who gave 'loud vocalization' as the alerting symptom between four and six months, reasoning that 'the baby must babble so loud because he can't hear himself otherwise'). The later first-symptom-ages, those from a year on up, however, could hardly have been given by unobservant parents, when it is remembered that consistent meaningful vocalizations and the beginning of meaningful speech in non-handicapped children do not emerge until roughly one year of age and are not culturally expected until well into the second year of life. It seems highly improbable that the same parents who were alert to the earliest detectable symptoms of speech dysfunction failed to notice severe OR disturbances for a period of one to three years, had such a disturbance existed in essentially the same form and severity throughout the life of the child. The distribution of first-symptom-ages is therefore interpreted as reflecting real differences in the onset time of OR disturbances among the 36 cases with central auditory or language disorders.

There was a wealth of supportive anecdotal evidence for the theory that cases with late first-symptom-ages showed normal early responses to sound. Although care was taken not to 'suggest' such evidence to informants, by far the greater problem was for informants to overcome their embarrassment at 'not having noticed earlier' something as obvious at the time of reporting as a severe OR disturbance. Subsequently, many informants gave detailed evidence of normal early startle and orienting reflexes and readiness-to-listen behavior patterns. A number of them gave clear evidence of early sound imitation and speech. Detailed evidence of continued occasional responses to even low intensity sounds and compelling evidence in a very few cases of expletive or interjectional speech in children considered 'totally non-speaking' also support the theory that severe OR disturbances are an inhibitory defect rather than a simple subtractive loss.

Discussion

The following model is offered to account for the extinction of a previously present OR. In cases of late first-symptom-ages, cerebral damage or faulty development interferes primarily with establishing the meaning of sound, and does not cause early dysfunction in response to noise. The 'built-in' startle and orienting reflexes are normal and are initially strengthened as the auditory stimulus is reinforced in its role as a major attention-centering mechanism for new environmental stimuli in other sense modalities. However, as the brain-injured child develops a capacity to react appropriately to more highly differentiated stimuli in the other sense modalities, the functional significance of the attention-centering mechanism is reduced and reinforcement becomes less frequent. Simultaneous with this process, the child continues to be provided with stimulation through a malfunctioning central auditory system to which he cannot associate and which therefore remains meaningless and unreinforced. Continuously unreinforced stimuli, or auditory stimuli only inconsistently reinforced, serve to make for disorganized learning processes associated with auditory stimuli and have a general inhibitory effect on the auditory system. The child thus learns to 'disregard' this sense modality completely, and a previously present OR is extinguished. Thus, once the diagnosis of central auditory or language pathology is accepted, no additional anatomic pathology has to be invoked to account for the extinction of a previously present OR.

This model can account for individual variation in onset time of OR disturbances ranging over a number of years, as well as the often reported deterioration of expressive functions. It must only be remembered that a variety of underlying malfunctioning processes (such as distortions in auditory pattern perception or altered characteristics of auditory stimulus after-effects affecting rate of perception) may interfere with auditory language functions at different developmental stages. The inhibitory processes which have OR disturbances as their common end-product are therefore set in motion at different stages in a child's development. No additional assumptions are required to account for deterioration of expressive functions such as sound imitation and speech. It is clear that such functions are intimately linked to a well-functioning auditory monitoring system, especially in the early years of life.

A theory of inhibitory defect directs clinical attention to processes rather than to symptoms alone. It seems quite likely that an inhibitory process involving the central auditory system may be triggered by a pathologically altered cns mechanism which is obscured by the auditory symptoms, but which may well be readily detectable (without necessarily causing symptoms) in other sense modalities. Studies of visual and tactile perception *(4, 5, 6)* with children thought to have only pyramidal tract damage suggest that general functional properties of the cns may be altered. Work now in progress attempts to show how such alterations in cns functioning may well be critical to those more complex functions unique to the central auditory system which are involved in the rapid rate processing of brief exposure stimulus patterns. A process orientation thus makes available other independent perceptual data which together with audiologic

or otologic findings may be useful in establishing a differential diagnosis between peripheral *versus* central auditory disorders. Such an orientation thus raises the hope of relating perceptual as well as other neuropsychiatric disorders to basic underlying cns processes.

A more immediate practical consequence of viewing the OR disturbances as an inhibitory defect rather than a subtractive loss is that through early detection it may well be possible to prevent deterioration of sound awareness by methods ranging from simple educational techniques to laboratory procedures for facilitating disinhibition. In the long run it may prove less difficult to prevent disorganized learning processes from extinguishing a previously present OR than to retrain an awareness for sound as a first step in the teaching of auditory verbal comprehension.

Summary

The onset time of orienting reflex (OR) disturbances in 36 children with congenital cns pathology suggests that in a significant proportion of these cases OR disturbances emerge as late as the third or fourth year of life. Supportive anectodal evidence shows that early responses to sound were quite normal in many patients. It is suggested that inability of the auditory system to serve more complex communicative functions gives rise to disorganized learning processes. Such disorganized learning (conditioning) processes are invoked to explain the extinction of a previously present OR. Similarities in underlying processes as well as observable behavior among these children, aphasic adults and nonlanguage-handicapped brain-injured children are suggested, and the practical significance of the findings is discussed.

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Observations On Therapy For Stuttering In Japan

Frederick Pemberton Murray

The problem of stuttering exists in many parts of the world. The observations reported in this article were made while Mr. Alphonsus Thimmesch and the writer were in Japan serving in the military forces of the United States and may be of interest to those who have wondered about the status of the stuttering problem and stuttering therapy in the Far East. Due to existing circumstances, observations are limited to only one Far Eastern country, Japan.

The beginning of work with stuttering in Japan appears to date back to about 1904. A Dr. Shuzi Izawa was at that time in the United States studying methods for the education of the deaf under Alexander Graham Bell. His idea that the stutterer should be able to speak if a deaf person could do so led him to experiment with speech training methods for the deaf and to adapt some of them for purposes of stuttering therapy. Upon his return to Japan, he tried such a method on his stuttering brother Suegoro and was said to have brought about vast improvements in his condition. The method spread and soon came to be used quite generally. Izawa opened a speech school where stutterers were treated.

Frederick Pemberton Murray (M.A., University of Southern California, 1950) is Speech Therapist, Jefferson Union School District, Santa Clara County, California. Special acknowledgment is made to Professor Wendell Johnson, of the State University of Iowa, for his supervision, and to Mr. Alphonsus Thimmesch, of Los Angeles, for his assistance in gathering data. This article is based on a paper presented at the 1956 Convention of ASHA in Chicago.

Private Speech Schools

At the present time, there are four major private speech-correction schools in Japan. Three of these are located in the Tokyo area and the other is in the vicinity of Kobe. Of the four schools, two were visited. In addition, various clinics and rehabilitation centers that occasionally admit stuttering cases were investigated. However, most of the observations were made in two of the stuttering schools in Tokyo.

In one school, established in 1925, there are five three-week sessions of therapy given annually. Classes average around 100 pupils aged four years and upward. Males outnumber females at least six to one. Much of the speech work is done in one classroom and the pupils are congregated there. The director of the school, Mr. Masayuki Hamamoto, a former stutterer and pupil of the old Izawa School, is present to conduct most of the sessions. At other times during the year he may be found in various parts of Japan leading three-week classes in stuttering therapy. His son Sachiyuki, who is a student of psychology at Waseda University in

Tokyo and has a working knowledge of English, occasionally attempts translations of American writings on stuttering and assists his father in teaching.

The therapy program may be outlined progressively as follows: (1) examinations: measurement of breathing patterns, tape-recordings of responses to questions, brief psychological evaluation and prognosis; (2) drills: mouth position formation, vocalized vowel sounds, physical exercise emphasizing abdominal breathing; (3) phrasing: oral exercises, individual and in unison, using sentences on blackboard with marked pauses and points for breath; (4) practice of new speech pattern: demonstration by the instructor, speeches by the students; and (5) mental hygiene: improvement in mental attitude, bringing out strong personality points, encouragement to become more sociable.

This three-week course is highly concentrated and the students spend much of their day in the classroom. On the walls there are charts showing the organs of speech and the positions for making various sounds. The pupils sit on low benches or on the floor. In true Japanese fashion, the lessons are conducted in a quite formal manner. Each person who recites has to make the usual 'bow' before the class and the class responds with like courtesy before the individual proceeds with his talk. Emphasis is put on replacing the customary pattern of speech with a new one along the lines of sing-song, controlled phrasing, slow rate and rhythmical breathing. With regard to the latter, it was noted that the speakers learn to inhale deeply and to commence to emit a light vowel sound before gliding into the beginning of the sentence. The mouth movements are exaggerated, perhaps due to the intensive exercises dealing with mouth positions for forming words.

The general atmosphere is one of understanding, and the group spirit is that of mutual interest in the problems which the members have in common. One day a man who had attended Mr. Hamamoto's school in 1929 dropped in and gave a talk to the students. He had been a bad stutterer years before and was now speaking with fluency. Having read an account of the school in the newspaper, he had decided to stop by for old times' sake.

On the last day of the course the graduation ceremony is held. This is the important day and each student primes himself to do his very best to prove to his parents and others present that he has conquered his 'malady.' Mr. Thimmesch and the author attended the Hamamoto school on one of the graduation days. The ceremonies lasted for some four hours, while kindergarten children squirmed restlessly on the long wooden benches and cried in their mothers' arms from fatigue. Grammar school boys and girls stood on the platform and told their parents and friends how happy they were to graduate. Parents and instructors alike wept openly as a young man, almost blind, dramatically told about his experiences as a stutterer. The headmaster and his assistants nervously hurried the program along, trying to keep it on schedule. Newspaper photographers took pictures, radio announcers made tape-recordings and gifts were presented to the American observers after they had concluded their speeches to the graduating class, speeches made with the aid of an interpreter. The headmaster led his class in a final therapy period of speech drills. As the vowels were chanted, on the wall pictures of men

who had been influential in regard to stuttering therapy in Japan seemed to give a silent benediction.

Then the students left the classroom to rejoin the outside world. There the real test was to begin. After any systematic stuttering therapy the fluency gained must be incorporated into daily life situations. Mr. Thimmesch and the author were aware of this and regretted not being able to check on the maintenance of progress after the students had graduated.

After the ceremony, when the director, Mr. Hamamoto, was interviewed, he said:

> We feel that there is nothing wrong with the organs of speech in the stutterer. In the majority of cases correct breathing and proper movements of the lips and good timing of the speech attempts will cure a person of stuttering. When we speak, we unconsciously inhale, then exhale; but stutterers use their breath which they inhaled before they speak, because the wrong movement of their lips causes them to inhale again and thus no sound comes out. Stutterers repeat this motion of inhaling and exhaling several times before they find it possible to speak.
>
> Those who stutter lack a sense of security and are afraid to speak in front of other people; therefore, teachers and parents must be patient with them and encourage them to express themselves though they may be rather slow in their speech for some time after they have taken the course. I have received numerous letters from former students who gratefully inform me that they are doing much better in their school work after they have taken this course. I maintain that if they are diligent in continuing to practice what they have learned at this school and are given help by their parents and teachers until they become sure of themselves, they will not stammer any more.

Another school in Tokyo treats a large number of stutterers each year. The headmaster of the school, Mr. Kaoru Umeda, once stuttered, and, like Mr. Hamamoto, was drawn into the work because of this disability. In a visit to the school an evening's program for stutterers was observed to include: (1) a lecture about stuttering in general; (2) posture exercises; (3) breathing drills; (4) mental tranquility exercises; (5) speech practice in conversation, reading aloud, prepared speeches, discussion and debate. It was interesting to note that the breathing exercises were quite different from those used at the first school. Here the students shut their eyes, leaned back with hands on their abdomens, then came forward, exhaling on the forward motion. This was 'quiet' breathing with no 'thinking' about it. The breathing was done through the nose. The pupils were asked to do these exercises at least 10 minutes a day by themselves, without supervision. The headmaster told them that they must not run away from feared situations but must face up to them with firm determination. Toward the end of the evening he again gave them a period of silence so that the idea of quietness might 'seep into their minds.' He gently but firmly reminded them of three things to remember at all times: (1) that they are not stutterers, (2) that they are most healthy and (3) that they will, some day, be excellent speakers.

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University Programs

Dr. Ukio Togawa, of the Psychology Department of Waseda University, has dealt with stuttering cases in addition to his other activities in the field of psychology. During the course of an interview with Dr. Togawa he stated:

> I do not believe that stuttering is due to some organic defect or that it has a hereditary basis. The handedness factor, likewise, does not have a significant bear-

ing upon the stuttering problem. My results in administering TAT tests (designed for use in our Japanese culture) indicate that stutterers tend to demonstrate many traits of hostility. My stuttering program is divided into two groups: (1) children and (2) adults previously untreated.

With young stutterers, we, in this clinic, find that there is more than a reasonable gap between their need to speak and their capacity to do so. I place a great deal of importance upon the family circumstances and adjustment problems and feel that they are often the main cause for the stuttering. Breathing exercises are not used.

With the adults I try to give attention to the fears that they have about speaking and try to bring about a change by having them verbalize sounds and words in order to gain confidence. Anything that will diminish their fear of talking seems to be of benefit. I think that adult stutterers who are highly nervous are in need of psychiatric treatment.

Stutterers seem to stutter more at home because of the effects of family discipline. Many girls find themselves fading into the background in a typical Japanese home and hence do not have the opportunity or need to speak as often as boys. There may be more girl stutterers than we realize. Shock as well as illness can cause stuttering. One child was brought to me from the Hiroshima area right after the atomic attack.

Professor Togawa's therapy directed toward young stutterers has been limited apparently to parental counseling with particular emphasis on lessening the strict nature of the training in the home, but the majority of parents feel that this does not conform to their traditional discipline pattern and disregard his advice. Here is seen the great influence of the family structure and the depth to which it is imbedded in the Japanese culture. *If* there is cooperation from parents during their child's stuttering therapy, Dr. Togawa thinks that children are easier to help than adults. When asked for his definition of stuttering he replied, 'Spasms occur in the voice, largely in the vocal-fold area.'

Other methods for the treatment of stuttering exist in Japan. One day, as observer-investigators, Mr. Thimmesch and the author visited the Tokyo University Medical School, where a very cooperative Dr. Kotoji Satta gave a demonstration. One of his patients, a Japanese youth in his twenties who had been given scopolamine for about six months, was comfortably resting, after scopolamine injection, in a low chair with the bright clinic lights shining down on him. Many doctors and nurses dressed in white gowns were in attendance, and we were told that he was going to read aloud. During the reading procedure, Dr. Satta was careful to point out the slight tremors that remained in the young man's speech. The patient was said to have been formerly a very severe stutterer, and the reduction in symptoms was attributed to the 'calming effect of the medicine upon his nerves.' It might be added that he seemed relaxed to the point of being very sluggish and drowsy.

This laboratory used a tape recorder in its work and the recording of the speech of a severe stutterer was played. Although the recording was in a foreign language, the characteristics of extremely severe stuttering were recognizable.

Dr. Nobuyoshi Hirai, a faculty member of Ochanomizu University, has also done considerable research on, and experimentation with, therapy in the field of stuttering. He has specialized in handling children in the three- to four-year age group, with a few older children included in the program. Dr. Hirai has made note of what, in his opinion, are some of the major causes of stuttering. It seems appropriate to mention some of these alleged causes here. In one case, a 32-

month-old boy was forced to study the violin twice a week. When his parents were advised to end these lessons, the stuttering was reported to have stopped and not to have returned during a period of three years. In five cases, the difficulty was said to have begun when a brother or sister was born. One case began to stutter, it was said, when his parents thought that he was not talking enough and forced him to speak more. In one incident, a boy's trouble was said to have begun with the fear that 'a door was being broken down.' He was 'cured,' but nine months later he began to put an 'oh' before many words.

It is pertinent to note that in 20 cases Dr. Hirai learned what the parents had done in an attempt to alleviate the stuttering problem before bringing the children for professional help. As summarized by Dr. Hirai, the parents had (1) urged the child to speak slowly, (2) encouraged the child to tell stories, (3) corrected the youngster after he stuttered, (4) told the child to calm down, (5) had the child repeat the word stuttered upon, (6) scolded the child and (7) asked the child to repeat after the parent.

Regarding therapy for these youngsters, Dr. Hirai listed the following general instructions for the parents: (1) stop speech training for the child, (2) do not mention stuttering, (3) minimize all scolding, (4) increase the affection shown the child and (5) accept the youngster as he is. These ideas are combined with play therapy under his supervision. He feels that more severe cases achieve satisfactory release by running a big play model truck that makes a lot of noise. Dr. Hirai asserted that about one half of his stuttering cases cease to stutter after they have completed therapy and some of the others show improvement. He is also studying related problems such as thumb-sucking, bed-wetting, *etc.*

Parental Attitudes

It seems fitting here to report an interview with the mother of a 10-year-old Japanese girl. The interview reveals some of the feelings and evaluations that appear to be typically Japanese. Mrs. Mie Nagai, a former speech student at Ohio State University, who ably assisted the investigators, conducted the interview and the following case history excerpts are from her notes:

> The girl was born in Tokyo during the war. According to the mother, the birth was completed without any unusual difficulties and instruments were not used. At two months of age, while the child was in a bomb shelter, she caught a serious cold and was taken to the hospital. The family left Tokyo because of the bombings and traveled to the countryside where they lived until after the war. Shortly after returning to Tokyo the child became ill with pneumonia. She suffered from this illness for the third time when she was two years old and nearly died from it at the age of five.
>
> The father of the child is an automobile parts salesman. The girl has one brother who is 14 years her senior and she has a sister six years younger. When the stuttering girl was six years old she lost an older brother in a boat accident. Also, around that time a sister died from illness.
>
> When the child was in kindergarten, the mother first noticed that there was something 'different' about her speech. She did not seem to speak enough and her speech was 'inadequate.' The mother did not pay much attention to this until the child was in grammar school. At this time, there was another child in the neighborhood with whom the girl played and this child liked to imitate what was termed, in this mother's words, to be 'stuttering.' Soon her little girl began to exhibit what seemed to be imitations of

stuttering. This imitation was described as being of the effortless repetition type. When the mother asked her daughter, 'What happened at school today?' the answer was given in speech that was not fluent. The mother was not able to understand what the child meant. The mother did not seem to think of her own child as a 'stutterer' and did not use the word at all. She did feel that she was poor in her speaking and that she was 'speech handicapped.'

When the child was in second grade, the mother heard a radio program on which a medical doctor spoke about stuttering. He described speech handicapped school children, and with this description in mind, she decided that her girl was probably a 'stutterer.' The parent then went to the school to discuss the problem with the teacher. The teacher described the child as being bashful and shy and thought that this was why she did not speak well. The teacher encouraged the mother to have her child speak more and to listen affectionately to what she had to say. The parent realized that the teacher was giving her child special consideration in the classroom and felt that the child was a 'stutterer' but would not come right out and tell her so. The teacher gave the child special assignments to build up her confidence. During recess the child wanted to stay in and read, but the teacher encouraged her to go out and play with her friends. When the girl recited in class, the teacher told her that her voice was too low. If her classmates screamed at her to speak louder, the girl became very embarrassed and got red in the face.

When she was in the fourth grade, she was assigned to a new teacher. This teacher called the mother to the school and told her that her daughter was a stutterer. Up to this time the mother had not taken her to a doctor about the problem. The teacher advised the mother to take the child to a stuttering school. Up to this point, it was believed that the girl herself was not aware that she stuttered. In the home and the neighborhood everyone thought that she was shy about speaking. The father was always of the belief that she would get better and paid little attention to her. The mother admitted to strictness in the home but said that she and her husband were affectionate with their little girl. When she was punished for misbehaving, she would cry and call for her dead sister. The mother stated that she stuttered more after these particular times.

The mother did not want to tell the child that she had to go to a stuttering school and she asked the teacher to break the news to her. As soon as the girl learned about it, she felt disgraced and began to have fearful apprehensions about the 'stuttering school.'

Apparently the child's speech had grown consistently worse through the years, because when she was brought to the school her speech was described as being full of repetitions, pauses of unusual length and a protrusion of the tongue. The mother evaluated this protrusion as evidence that the child had an unusually long tongue.

Cultural Influences

Mrs. Nagai felt that it is more difficult to establish rapport with a Japanese parent in an interview than with an American. It also seems to be more difficult to ask personal questions.

In Japan, stutterers are probably hidden from society more frequently than they are in the United States. Because of the particular stress placed upon family status, there is an unspoken obligation for each family to show only its 'better' side to the outside world.

Dr. Fumihide Koike, a worker in the Japanese Crippled Children's Society, thinks that many people in his county look upon a stutterer with little or no respect. He says that stuttering is considered a very definite handicap in any business field. Although there is no national society dealing with the difficulty, many people in Japan have been working toward governmental realization of the problem and of the welfare of stutterers.

Growing Interest

Since the observations reported here

were made, a Stuttering Study Group has been formed at the University of Tokyo by Tsuneo Taguchi, M.D., Goro Kamiyama and several of their colleagues in both medical and non-medical fields. The group has begun publication of a journal devoted to the study of stuttering and related problems. The first issue of this journal, published in 1956, carried a 'Foreword' by Professor Wendell Johnson, of the University of Iowa; a communication from Dr. George Kopp, Secretary-Treasurer of the American Speech and Hearing Association; a bibliography of articles from the *Journal of Speech and Hearing Disorders;* and abstracts and excerpts from other books and articles published in the United States and other countries, as well as original articles by members of the Japanese group. Dr. Taguchi has studied in the United States and is currently spending a year in further study at the Institute of Logopedics in Wichita. A number of other Japanese students and professional workers have expressed interest in coming to the United States for professional training in speech pathology.

The Stuttering Study Group has been connected with a National Survey of Speech Handicapped Children in Japan. This survey, although not completed, indicates that in Japan, as in all other parts of the world, there are many more male stutterers than female. In cases of stuttering children and suspected stuttering children in the public schools in Japan, the ratio appears to be around six or eight to one.

In addition to these indications of increasing interest in stuttering and allied problems among the professional workers, there is among the Japanese people generally a growing consciousness of these problems and the possibility of doing something constructive about them. In one area, many of the local residents have petitioned the Minister of Welfare to bring the matter to the attention of the Diet, the leading governmental body in Japan. The public schools do not have a program for stutterers and it is felt that one will be needed in the near future.

At this point, the author wishes to state that it was a very difficult matter to determine the over-all effectiveness of the various treatments for stuttering mentioned in this paper. As stated before, a reliable follow-up on any case seen by these observers was not possible. Also, many of the reported statements concerning certain stuttering cases were not subjected to any challenge or further investigation due to time limitations. With regard to the findings in the parent interview performed by Mrs. Nagai, subjectivity on the mother's part as well as her efforts to recall instances that occurred many years before might have changed the account somewhat. However, it was felt that the case in question might be typical of Japanese parental attitudes toward a stuttering child.

CULTURE AR... LIBRARY

Summary

This paper describes visits to two private Japanese schools offering short courses in stuttering therapy, interviews with psychology teachers in universities, observations in a university hospital, an interview with the mother of a stuttering child and a review of some recent efforts in Japan to investigate and explore the stuttering problem further.

The Effect Of Auditory Masking Upon Oral Reading Rate

Richard A. Winchester

Edward W. Gibbons

For many years auditory masking has provided the means for detecting non-organic deafness (*1, 6*).The success of one such audiometric procedure, the Lombard Test, depends upon the interference with the speech monitoring process provided by the masking noise (*5*). In 1949, Hanley and Steer (*3*) reported the results of a study concerned with the effects of distracting noise upon speech production. These investigators found that subjects, binaurally masked with relatively high levels of 'airplane-type' masking noise, showed several changes in mode of s p e a k i n g. Among these changes was a significantly lessened speech rate.

Recently the authors reported a delayed sidetone test designed to detect uniaural non-organic deafness (*2*). In this procedure, uniaural masking was used to minimize the effectiveness of the speech monitoring functions of the ear not being tested. Measurement of oral reading rate was used as an index of delayed sidetone interference with the speaking process.

With the advent of the use of auditory masking in conjunction with delayed sidetone audiometry, renewed interest has developed relating to the effects of clinical masking upon oral reading. The present report concerns the investigation of the influence upon oral reading rate provided by a commonly used clinical masking noise.

Richard A. Winchester (Ph.D., University of Southern California, 1957) is Research Audiologist and Edward W. Gibbons (M.A., Columbia University, 1948) is Chief, Audiology and Speech Correction Clinic, Veterans Administration Regional Office, Los Angeles, California.

Subjects

Three subject groups, each composed of 40 normally hearing veterans, were randomly constituted for study. All 120 subjects had been seen on a routine basis in the Medical Division of the Veterans Administration Regional Office at Los Angeles for audiometric adjudication examination conducted in the Audiology and Speech Correction Clinic. These veterans had been shown to have speech reception thresholds for both ears of five decibels or better. In addition, all subjects were free of a history of any neuropsychiatric disorder, or evidence of a reading or speech defect. One of the groups studied had also been utilized in a previous investigation of oral reading rate of normally hearing veterans under several modes of delayed sidetone presentation (*7*).

Equipment

The masking noise used was of the

TABLE 1. Group reading times in seconds.

Test Condition	*N*	*Mean Age*	*Mean Time*	*Standard Deviation*	*Range*
Uniaural Masking	40	33.4	131.1	15.8	92.8–179.7
Binaural Masking	40	32.8	139.4	19.7	109.8–212.0
No Masking	40	31.6	129.8	21.3	90.5–183.8

saw-tooth wave-form type and was generated and delivered by a U. S. Recording Hearing Evaluator, Model 200. Matched Permoflux receivers, Model PDR-8 with MX 41/AR cushions presented the masking noise to the subjects. The prose passage used to elicit the oral reading responses contained 500 syllables of discourse taken from a fifth grade reader. This passage had been edited in order to achieve uniformity with respect to reading difficulty and was identical to the passage used in the previous study of delayed sidetone interference with oral reading.

Procedure

Three different test conditions were employed in a simple randomized experimental design. The first condition involved the reading of the test passage under a uniaurally presented masking noise having a sensation level of 80 db. In this group, noise presentation was alternated so that one half of the subjects received the noise in the right ear, while the remainder received the noise in the left ear. The second condition concerned the reading of the same passage under a binaurally presented masking noise with a sensation level of 80 db. The third condition involved the reading of the test passage under headphones without masking. All tests were conducted in the same two-room test suite so that conditions of lighting, ambient noise, *etc.*, remained constant. Each subject read the test passage under a single experimental condition, and the amount of time required to read the passage was measured by means of a stop watch.

Results

Table 1 summarizes data obtained from the three groups under each of the three test conditions. In order to estimate the difference in the effects

TABLE 2. Analysis of variance testing reading rate differences among test groups.

Source of Variation	*d.f.*	*Sum of Squares*	*Mean Squares*	*F*
Total	119	54,013	——	
Between groups	2	2,160	1,080	2.438
Within groups	117	51,835	443	

of the two modes of masking on oral reading rate, a conventional analysis of variance procedure was employed (*4*). Table 2 summarizes the computations leading to an *F* score which provided a test of the over-all null hypothesis. The *F* score obtained from the above computations indicated that the reading times for the three test groups were not significantly different at the five per cent level of confidence. Therefore, the null hypothesis was accepted and the data were not subjected to further analysis. It was concluded that the application of saw-tooth masking noise not in excess of an 80 db sensation level does not significantly alter oral reading rate for normally hearing subjects with either mode of masking noise presentation.

Summary and Conclusions

The most common clinical method for detecting and measuring delayed sidetone interference with speech production currently in use involves the establishment of differences in oral reading rate. The use of auditory masking in conjunction with delayed sidetone audiometry, as well as experience with the Lombard Test, has pointed to the need for more definite information concerning the influence of auditory masking upon one aspect of speech production, oral reading rate.

The results of this investigation make it possible to conclude, in the case of normally hearing ears, that auditory masking at sensation levels not in excess of 80 db does not produce clinically measurable alterations in oral reading rate. This appears to be true in spite of the fact that such a level of binaural masking tends to increase the vocal loudness level, *i.e.*, the Lombard effect. However, caution must be exercised in applying these conclusions in cases of hearing impairment, for the effect of auditory masking, as described above, remains to be investigated in persons showing otic pathologies.

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Clinical Notes

Esther L. Herbert, *Editor*

A Child Who Was Speechless in School and Social Life

The following case report is a direct and brief account of the work of a public school speech therapist who, by working with the classroom teacher, the school principal and the parents, was able to help a child overcome his fear of speaking in public situations. (*Editor*)

LeRoy, who had never spoken in school, was referred to the speech therapist during the second semester of first grade. The boy showed good comprehension, did all his silent work, was careful with minute details and was very good in art; but he had never read aloud nor taken part in the rhythmic work and singing. LeRoy's intelligence was average, and his score on the Detroit First Grade reading test was 92, well above average.

His parents said that LeRoy talked with his family and played well alone. He would never play with other children or go to their homes. His speech with the family was normal. The only reason his mother could give for his behavior was that he was bashful. But the speech therapist felt this remark had been made so often that LeRoy had been encouraged to develop his anti-social tendencies rather than to overcome his natural shyness.

The speech therapist was called in because, by school rules, LeRoy could not advance to second grade until he could read aloud. The first session showed almost no progress, although, of course, the therapist did not wish to rush the child. He obviously could hear well and take directions; vocabulary and memory were no problem to him, as his comprehension and seat work showed. At the second session, the therapist began to gain his confidence, and when asked, LeRoy timorously showed both his tongue and his teeth.

During the third session, he uttered his first word in school. Knowing his interest in coloring, the therapist had brought some attractive colored pictures of animals and children. His interest in these was used as the first step in breaking through his withdrawal and silence. In order to see the pictures, LeRoy repeated 'come' and then other first-grade reading words.

At the next meeting, he read a book for the therapist. He read well, and was, of course, praised generously. Later he agreed to 'surprise the principal' by reading aloud for her, and also for his teacher, although he would stop if anyone else came into the room.

He remained completely withdrawn from his contemporaries, although he would read for a few adults. At an outdoor picnic the following September, he held his ice cream cone in his

Contributions to Clinical Notes should be sent to Esther L. Herbert, Los Angeles City Schools, 1822 E. 7th Street, Los Angeles 21, California.

hand while it melted, and he did not move until he was told to throw his soggy cone away—which he did. He watched the other children having fun, but showed no indication that he was enjoying himself.

As LeRoy's second grade year progressed, the therapist encouraged him to read for, and later play with, two neighbor boys who were in his school room. After she suggested that he visit one of them to watch television, LeRoy did so. He had never before gone to another child's house to play. His conversation then was in one-word sentences, but he had no speech defects.

One day the therapist suggested that LeRoy's two friends each bring another boy to be surprised at how well LeRoy read. He assented. His classroom teacher, who was very cooperative, was asked to send first the boys, then the girls, one at a time, at about two-minute intervals. The children came, one by one, and the group moved to a larger room, but LeRoy continued to read for them. They all moved back to the classroom, where everyone could have a seat. And there LeRoy walked to the front of the room, sat in the teacher's chair and read to the children of his class.

The next day he stayed home; the shock must have been too much for him. The speech therapist went to his home, and he eagerly returned to school with her. When he arrived, his classmates had chosen colored paper to make Easter baskets. He was asked what color he wanted, and he answered 'green.' The following day, LeRoy's teacher noted that he had read aloud in class and that the children had chosen him for games, although he would not participate in the poems or rhythmic actions.

Three weeks later, just before his second grade year ended, his teacher reported that he was participating more and that 'he beams,' whereas before he had shown no facial expression. His withdrawal and silence were rapidly breaking down, and his behavior appeared to be that of a normal, happy child.

ROSE STRAIT

Pueblo, Colo.

Therapy Techniques for Better Nasal Resonance

The purpose of the therapeutical techniques described below is to teach persons to use a more pleasant nasal voice quality in talking.

The techniques involve the use of these items of equipment: Shure (Maico) contact microphone, Melody Master Ear-trainer Model T-1 and Maico Chromalizer. The microphone is the so-called 'heart-beat' remote pick-up used with the Maico Stethetron.

Every therapist is familiar with using the stethoscope with nasal olives as a therapeutical aid for improving that speech usually described as cleft-palate speech. The contact microphone and other equipment listed above are used similarly, but with added advantages. With the contact microphone there is no problem of fitting nasal olives to nostrils badly deformed by deviated septum and no problem of fitting stethoscope earpieces to sensitive outer-ear canals. There are the added advantages of having visual as well as acoustical cues and much faster adjustment to the learning situation.

Technique (1): Contact Microphone and Ear-trainer with Speaker. Put the contact microphone plug into

the mic-jack on the Ear-trainer. Be sure the microphone plug and mic-jack match before trying any of these techniques. Set the Ear-trainer unit on 'speech' input, turn the speaker-end of the trainer toward the person and turn the 'speaker' out-put gain on full. With the contact microphone held lightly along one contour of the nose, have the master-gain adjusted so that a minimum of voice signal is audible with relatively non-nasal sounds, and a maximum is audible with relatively nasal sounds and no feed-back howl.

For each new person it is necessary for the therapist to palpate the outside contours of the nose with the contact microphone to find the one contour affording the best pick-up. The best results are obtained when the weight of the microphone is allowed to determine the contact pressure. *Do not press* the microphone against the nose.

Subsequent instruction procedures are the same as with the use of an ordinary stethoscope ear-piece and nasal olives.

Technique (2): Contact Microphone with Ear-trainer Fed into a Chromalizer. Technique (1) dealt with obtaining only acoustical cues; technique (2) offers the added advantage of visual cues.

Again, set the ear-trainer for 'speech' input. Turn the speaker-gain knob fully to the 'off' position. On the Melody Master unit, the ear-phone adjustment knob is turned fully counter-clockwise, and the master-gain is set somewhere between the index numbers 6 and 8; exact setting depends upon the condition of the equipment.

For connections, the patch-cord supplied with the Chromalizer is used. The three-way contact plug is plugged into the 'phone' jack of the Ear-trainer; and the two-way plug, into the in-put jack of the Chromalizer.

On the back of the Chromalizer, turn the master-gain fully on. Set #2 (blue) light on index number 7, and set #6 (violet) light halfway between the index numbers 5 and 6. Turn the remaining four lights fully 'off.'

With these settings, connections and the microphone just lying lightly along the *best* contour of a person's nose, try this sentence: 'That's the house Jack (bought) (built) many, many months ago.' For the first half of the sentence only the blue light (#2) should be brightly visible; but for the second half, except for 'ago,' both the #2 and #6 lights should glow brightly.

Technique (3): Detection of Excessive Nasal-air Emission. Let the Technique (2) connections remain. Turn 'off' the #2 light. Turn the #6 light gain-knob between the index numbers 8 and 9. Turn the Melody Master master-gain clockwise until the #6 light glows with any movement of the contact microphone, but not so fully that the #6 light stays on too long after the signal input ceases. Have the person recline comfortably with his head resting so he can whisper without jarring his whole head.

Hook up another amplifier with a conventional microphone and VU meter. Mount the conventional microphone on a boom or goose-neck about two inches before his mouth. Set the gain of the VU feeding amplifier so that the VU-needle moves just a little for a soft 'p' sound, but not for room noises. The contact microphone is held along a contour of the nose as before.

With this set-up, the person may whisper various sounds, words or

phrases which are relatively light on nasal resonance; he is to make the VU-needle drift back and forth *without* having the #6 light glow. As several of the children say, keep the light 'dead.'

The therapy room noise level must be kept fairly low for this third technique. For the first two techniques, however, no special noise control is necessary.

Conclusion. I have used these techniques for the past two and a half years with very gratifying results. Dr. Gordon E. Peterson of the University of Michigan has suggested the use of an Altec or other similar probe tube in lieu of the contact microphone. To date I have not had the opportunity of trying his suggestion.

JAMES M. LAING

Baltimore, Md.

Voice Quality After Adenotonsillectomy

C. N. Hanley

C. C. Manning

Although nomenclature has varied considerably and descriptions of voice quality are often ambiguous, hypernasality is relatively distinct in nature. Its impression on the listener appears to be more consistent than other forms of voice quality disorders. A survey of the relevant literature reveals that much of the research on hypernasality has resulted from its relationship to cleft palate deformities. In addition to palatal clefts, such factors as paralysis of the velum, velar insufficiency and surgical removal of the adenoids are recognized commonly as being etiologically related to hypernasality.

It is not uncommon to find statements in standard textbooks calling attention to the positive correlation between adenotonsillectomy and excessive nasality. Beryl Oldrey (*1*) observed: '. . . it is only seldom that surgical aid alone is sufficient to restore normal voice. It is not an exaggeration to say that every case following such an operation would derive considerable benefit from a course in general speech exercises, breathing, resonance and articulation.'

Oldrey felt that the post-operative voice quality might take one of two forms, rhinolalia clausa or rhinolalia aperta. It should be noted that the author was speaking of the child with hypertrophied tonsils and adenoids but provided no definition as to criteria necessary to warrant the use of the term 'enlarged.' It must be concluded that she was speaking of the reactions of a select group of children.

Another author, D. L. Poe (*2*), reported observations of voice change which occurred in specific cases of adenotonsillectomy. Poe's explanation of observed increases in hypernasality and nasal emission was in terms of attempts by the patient to decrease surgical soreness. The emphasis on intentional reduction of movement to reduce pain would seem to merit consideration, especially if the speech returned to its pre-operative quality after surgical pain disappeared.

In contrast to Poe's approach, other authors have held that post-operative hypernasality resulted from a dysfunction of the palatal muscles. In developing this approach, West, Kennedy and Carr (*4*) distinguish between adult post-operative adjustment and that made by children during the formative speech period. In the adult, with the obstruction present a short time, surgery resulted in a brief period of speech habit readjustment. Removal of a comparable obstruction in the child changed rhinolalia *clausa* to

C. N. Hanley (Ph.D., State University of Iowa, 1952) is Associate Professor of Speech, Speech and Hearing Clinic, University of Washington. C. C. Manning (M.A., University of Washington, 1957) is Speech and Hearing Therapist, Yakima Public Schools, Yakima, Washington.

rhinolalia *aperta*. They concluded: 'If a child develops a stoppage of the nasal passages at age two, and this stoppage is not effectively removed till the age of 10, his speech will present precisely the same problem after the operation as that of the patient who has undergone successful operation for cleft palate.'

In reviewing the relevant literature, these authors noted that very few experimental studies have been performed which bear on this problem and that a great quantity of literature has been devoted to introspection and subjective impression.

The purpose in the present study was to measure voice quality change, expressed in terms of hypernasality, which occurred as a result of adenotonsillectomy. More specifically, the problem was (*1*) to determine whether significant hypernasal voice quality changes occur in children as the result of adenotonsillectomy and (*2*) to investigate the duration of any observed significant changes.

Procedure

The experimental group, 16 males and 16 females, ranged in age from four years and six months to 10 years and seven months of age. These subjects were obtained through the cooperation of the King County (Washington) Public Health Department and nine private physicians. The subjects: (1) were scheduled for both tonsillectomy and adenoidectomy, (2) included no known hearing problems, (3) included a number of children with articulatory errors and (4) excluded those who were obviously mentally retarded. As some of the children were non-readers, nursery rhymes were chosen as the recording material since they provided a sample of connected speech in a standard presentation and also included an interest factor desirable in obtaining a series of recordings.

Since it was impractical for the parents to bring their children to the speech clinic, the recordings were made in the subject's home. In order to maintain consistant samples, a Magnacorder Voyager tape recorder with an American D-22 microphone was employed for all recordings. Two standard microphone positions, dependent upon the child's voice level, of six or 10 inches were utilized. Background noise was controlled as well as possible through furniture arrangement and the cooperation of the parents in 'sibling silence.'

In order to provide a recording schedule which would detect any early post-operative change in the child's speech and still provide longitudinal samples over a significant period of time, the following schedule was devised. The pre-operative recording was made two days prior to the operation. Post-operative recordings were made after two, nine, 23, 37 and 51 days.

A total of 183 speech samples were prepared for judgment. Although they were judged, the entire group (23) of fifth post-operative recordings was not included in the data analysis as nine subjects did not complete this recording session. Therefore, data on the pre-operative session and four post-operative sessions (160 samples), covering a period of 39 days, were presented for analysis.

The recordings were prepared for judgment by dubbing between the Magnacorder and a Presto RC 10/24 tape recorder. The entire series was randomized and prepared in reversed playback form (*3*) for the initial set

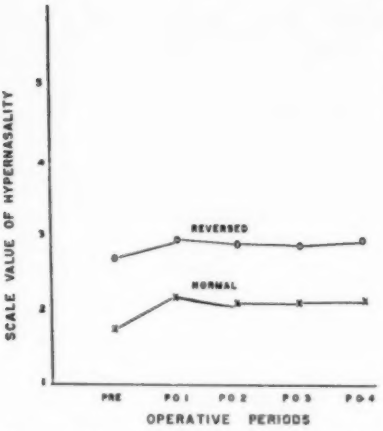

FIGURE 1. Mean scores obtained for operative periods through normal and reversed playback.

of judgments. Each sample, composed of two rhymes, was introduced by a recording number and followed by a 10-second interval, which allowed time for the rating.

In addition to the preparation of the experimental samples, a group of 20 trial recordings was utilized in order to accustom the judges to the method of presentation and to demonstrate the range of voice quality variation. No scaled standard was presented for judging.

After the evaluation of the reversed playback, the samples were renumbered and played to the judges in normal fashion. Four judgmental sessions were required for the 10 judges (speech teachers) to complete their ratings. The speech samples, at a sensation level of about 60 db, were presented to the judges over earphones in a sound-isolated room.

It should be noted that the rating method employed a limited scale technique. The judges were required to respond in terms of integral values rather than on a continuum. These values were identified by a number and by a qualifying statement. The following scale was utilized:

1. Normal speech
2. Slightly hypernasal
3. Moderately hypernasal
4. Markedly hypernasal
5. Extremely hypernasal

Accompanying this scale were standardized instructions and the following definition: 'Hypernasality is characterized by strong modification of the vocal cord tone by resonance from the nasal cavities during the production of sounds essentially nonnasal. This quality is often classified as rhinolalia aperta.'

For each of the 32 subjects, 50 judgments were recorded for each mode of presentation: that is, a scale value rating from each of the 10 judges was made for the pre-operative and each of the four post-operative recordings.

Figure 1 illustrates the judgment trend for both the reversed and forward methods of presentation. Attention is drawn immediately to the obvious disparity between the two trend lines. For all operative periods the reversed presentation received judgments of greater hypernasality than the equivalent normal method. It can be observed, too, that the first post-operative recording, judged to be the most hypernasal of the forward-played recordings, was judged to be less hypernasal than the reversed pre-operative recording. Although it was not the purpose of this study to investigate the method of presentation, this interesting disparity seems to warrant analysis. Analysis of variance and subsequent t tests substantiate visual inspection and reveal that the two

trend lines are, indeed, significantly separate.

A clue to a possible explanation for this difference was gained through conversations with several of the judges. They called attention to the presence of noise in the reversed recordings which seemed to be absent in the forward-played. The authors reason that the presence of reverberation preceding the voice proved to be an unusual condition for the judges and may well have biased these judgments. This variable arose because the recordings were made in rooms which were not acoustically treated to prevent undesirable reflections.

Further observation of the two trend lines in Figure 1 reveals that although they differ from one another, both lines are highly similar in appearance. The lowest scale value in each playback series is associated with the pre-operative recording, the point of greatest judged hypernasality occurred on the first post-operative recording and each line demonstrates much the same degree of change throughout the remaining post-operative recordings.

Statistical analyses, designed to determine the significance of the differences in scale values between all possible pairs of recordings in both series, show that all post-operative recordings were judged to be significantly more hypernasal than the pre-operative voice. Further analyses on both playback types were carried out and yielded data to show that no significant differences were found in the post-operative samples. It would appear, then, that following adenotonsillectomy, a significant change in voice quality took place for this group of children. However, within the scope of this study post-operatively, 37 days, the changed voice quality was judged not to have altered in any significant degree.

Hypotheses

In view of the findings, substantiated by both methods of presentation, the following hypotheses are presented as possible conditions which could bring about the observed voice change. It is suggested that a normal voice quality was present pre-operatively. With the completion of adenotonsillectomy, hypernasality occurred which persisted for the entire post-operative period. In support of this approach, the 'expertness' of the judges is affirmed, that is, their ability to observe and evaluate the degree of hypernasality. It should be pointed out also that the trend lines resulting from each method indicate that the pre-operative voice quality was judged to be significantly less hypernasal, or more nearly normal, than subsequent post-operative recordings. The observation should be made, however, that within the scope of the post-operative recording periods, no significant return in the direction of normality was found. Recalling the suggestion by Poe (*2*) that hypernasality resulted from a learned method to reduce surgical soreness, there would seem to be considerable recovery by 37 days post-operatively and a more nearly normal voice quality would be observed. If the hypernasality were based upon an improperly learned habit pattern as suggested by West, Kennedy and Carr (*4*), it appears that the pattern of voice quality may remain 'slightly hypernasal' for some time after the operation. 'Relearning' has not yet occurred at the end of 37 days post-operatively.

A second hypothesis is offered in

which the degree of change in this experiment is based upon denasal pre-operative voice quality which becomes hypernasal as a result of the tissue removed. When one recalls the position of the adenoid tissue, a denasal voice quality is conceivable. It should be remembered also that the rating scale used did not allow for judgment of any deviant voice quality other than hypernasality; therefore, denasal voices would, very probably, be marked as normal. Regardless of the pre-operative condition, the extended post-operative presence of hypernasality is open to the same observations as those previously cited regarding the first hypothesis. In addition, the suggested designation by the judges of denasal voice qualities during normal playback resulted in only two pre-operative recordings as being marked denasal. However, it is realized that such impromptu attempts at designating denasal quality are far from conclusive.

From the observed continuation of voice quality change throughout the post-operative period, two additional hypotheses have been formulated. Because the function of denasality is not clearly illustrated, the consequent question should be considered as to why pre-operative denasality became normal voice quality after adenotonsillectomy. The occurrence of an apparently stable voice quality which continued through the post-operative periods invites speculation as to the possibility of a quality change from denasality to normality. This change could be measured only in terms of hypernasality, although the post-operative voice quality may not necessarily have been hypernasal. The limitations involved in this approach were stated in the previous hypothesis regarding pre-operative denasality actually observed by the judges. The basic advantage to this hypothesis is that the stable hypernasality observed may have been a new stable normal voice quality which might maintain itself indefinitely.

A final approach to the observed change is based upon pre-operative normal voice quality in the children. With the adenotonsillectomy a voice change occurred as a result of the adenoid removal, which, in turn, resulted in modified resonator action. The change, resulting from different resonator action, may not have been one of increased hypernasality but rather of a new 'normal' voice. The post-operative quality may then have been different from the pre-operative quality, but not necessarily deviant in the direction of hypernasality, although judgment could be made only in those terms.

In considering the hypotheses suggested above, these authors must conclude, on the basis of the judgments obtained, that the two hypotheses suggesting pre-operative denasality seem to be less tenable than the others. As indicated earlier, only two pre-operative recordings were designated as being denasal. On the other hand, five first post-operative recordings were judged to be denasal.

The possibility of a new voice quality resulting from the operation should not be overlooked. The removal of tissue which creates modified oral-nasal resonance relationships must be considered in light of the apparently stable post-operative voice. Since these differences were observed to continue over a 37-day post-operative period, the suggestion that the quality is dependent upon surgical soreness or simple readjustment of speech habits seems open to question. The assumption of a continued different post-

operative quality is at present pure conjecture.

The most tenable conclusion seems to be that judgments revealed a shift from normality to hypernasality. Reliance upon sophistication of the judges is of major importance. Since each recording was presented as an isolated sample compared only to the judges' own standards of hypernasality and since emphasis was placed on the stipulation that the samples be judged in terms of hypernasality only, it is felt that a normal voice post-operatively would be evaluated in the same manner as would a normal pre-operative voice, though they might be different from each other. If such a difference were indicated, one could only conclude that noticeable hypernasality could result from adenotonsillectomy and continue for a period of at least 37 days. Under these circumstances hypernasality would be characteristic of children in the normal population who have undergone adenotonsillectomy.

Summary and Conclusions

The foregoing study was undertaken for the purpose of exploring changes in the degree of hypernasality which may occur in children who are subjected to adenotonsillectomy. The study dealt with two main problems in regard to the reactions of a group of normal children: (1) determining whether significant changes in hypernasality occur as a result of adenotonsillectomy and (2) investigating the duration of observed changes. A group of 32 children was studied through the cooperation of private physicians and the King County (Washington) Health Department. The voices of these children were recorded pre-operatively and for a period of 37 days post-operatively. With the completion of these recordings, the entire series was randomized and presented in two different ways to a group of expert judges for scaling. The results of these judgments were as follows:

1. Values were obtained which revealed significant mean differences between the pre- and post-operative recordings in the direction of greater hypernasality for the post-operative voices. This result is consistent regardless of the method of presentation (reversed or forward playback).

2. Analysis revealed no significant differences in judged hypernasality among the means of the post-operative recordings in reversed or normal playback.

3. A significant difference in scale value ratings was determined between reversed and normal playback techniques. Reversed playback procedures resulted consistently in higher scale values than the normal method.

4. Four hypotheses are presented with regard to the above results.

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Stuttering: A Psychiatric Viewpoint

C. S. Bluemel

Speech can be considered quite broadly within the purview of psychiatry. First, there is the matter of mood. Mood is seldom a plateau in human experience; the normal man finds himself at times exhilarated and at times depressed. He may even reach the crest of the wave or the trough of the wave. In abnormal mental states, the mood swings are profound, and they may reach the intensity of psychosis. Meanwhile, the mood affects the speech.

A man who suffers from mania lives at the crest of the emotional wave. His daily life is heightened and intensified. He has a great deal of high pressure drive. He has disconnected the brake, as it were, and he has his foot firmly on the accelerator. His mind races. He is voluble, egotistical, and self-assertive. He talks constantly, so much so that he may be hoarse from the excessive use of his voice. His conversation is likely to reveal disorganization of the thinking processes. The thinking lacks continuity, and the patient displays flight of ideas, perhaps with punning and rhyming. During this emotional illness the patient has an exalted sense of well-being, a so-called euphoria.

C. S. Bluemel (M.D., University of Colorado, 1916) is in private practice in Englewood, Colorado. This article is an adaptation of an address delivered at the 1957 ASHA convention in Cincinnati.

The situation is quite different when one drops into the trough of the wave —something that happens with or without the upward swing. The patient is now gloomy and disheartened. The brake is on, and the accelerator has been disconnected. The patient is tired and apathetic. The joy of life is gone. Nothing gives him pleasure any more. He is overcome with hopelessness and foreboding. He does not want to see his friends; he wants to withdraw and be by himself. The patient shows retardation of thought, and there is a marked impoverishment in his verbal thinking. He is slow to comprehend questions and slow to respond to them. He starts a sentence but fails to finish it. His speech becomes hesitant and fragmentary. The voice lacks inflection; the life and spirit have gone out of it. Sometimes the patient ceases to talk; he merely makes an occasional abortive movement with the lips. In melancholia, the patient is bewildered, defeated, disorganized.

These preliminary remarks have little to do with stuttering or stammering; none the less, they furnish a broad base for the consideration of functional speech disorders. We have seen that the psychoses affect the total personality, but we also observe situations in which the individual organs of the body develop aberrations. This is exemplified in goiter, or

hyperthyroidism. With this disorder the thyroid gland throws an excessive amount of secretion into the system, and the bodily reactions are overstimulated. The patient is tense, restless, and excitable. The eyes are widened, the face is flushed, the hands are tremulous, the pulse is fast. This disturbance of goiter is often a reaction to stress, and it was said to be common among Jewish people during the days of the Hitler persecution.

Within the purview of psychiatry it can be seen that the various functions of the body may become disorganized. Moreover, the distress of the disorganization induces further reaction; thus, functional disorders commonly occur in both a primary and a secondary stage. This observation applies to speech, but it is well to consider related functional disturbances when evaluating speech disorders. Too frequently, stammering is taken out of context, and it appears to be some kind of laryngeal, labial, or respiratory difficulty; and meanwhile the more significant psychoneurotic factors are overlooked. This is like confusing the spots of measles with the disease that causes them. Such an error is less likely to occur if we study the general pattern of functional disorders and at the same time observe their various phases.

Acid indigestion can be studied with relation to its primary and secondary phases. The indigestion itself is a primary disturbance, and it is usually a reaction to stress. But when the causal stress is maintained, secondary symptoms are likely to supervene. The patient may develop a peptic ulcer. The ulcer may erode an artery, and the patient bleeds internally. Thus we have a primary stage with too much acid and a secondary stage with too much blood.

The function of breathing may be disturbed by asthma. This is a primary disturbance in which the bronchioles, the finer branches of the bronchial tree, are constricted by muscular spasm. When the spasm is present, the patient wheezes, and he breathes with conscious effort. The reaction may be due to external irritation, such as smog, or cold or damp air, which the patient inhales. It may also be due to emotional stress—to 'smog' in the patient's inner life. The original asthma is a primary symptom, but it is soon followed by complications in which there are physical changes in the structure of the lungs. Thus the secondary stage is quite unlike the primary stage.

The circulatory system may also become disorganized in response to stress. The patient complains that his heart pounds and races and flutters, especially in response to exertion and excitement. These disturbances are of course the primary symptoms of the cardiac neurosis. The secondary symptoms are the resultant anxiety and panic and the protective reactions which they induce in the patient's behavior. But panic is itself a form of stress, and it accelerates the primary disorder. Thus we encounter functional disturbances which are self-accelerating.

There are many other disorganizations of function which add to the complexities of life. There are minor symptoms, such as dizziness, tremor, and migraine headache; and there are major functional disorders, such as hysterical blindness and hysterical paralysis of an arm or leg.

There are such self-accelerating disturbances as writer's cramp and functional dysphagia (difficulty in swallowing). With writer's cramp there is tremor of the hand and tightening of the muscles of the forearm, so that

writing becomes impeded and sometimes impossible. The writer now becomes embarrassed and apprehensive, and the tremor becomes worse. The patient is affected by stammering in writing. With functional dysphagia there is stammering in swallowing. When the patient eats, the food gets part way down the esophagus; then it seems to stick. The patient now strains and coughs and wheezes, and he may get blue in the face. Saliva and mucus accumulate in the mouth, and the patient may regurgitate the food. He may attempt the swallowing a number of times, and he may finally force the food down with vigorous gulps of water. When the patient eats in a restaurant and finds himself observed, his trouble is always worse. He suffers from a disorder that is self-accelerating.

And now we come to speech, a function that can become badly disorganized. Under emotional stress a patient may develop aphonia—an inability to produce voice. This is usually an adult disorder, and it is apt to be transient. We also encounter dysphonia, marked by functional huskiness of voice. This is a stress reaction, usually more chronic than aphonia. Because of the patient's emotional tension, the huskiness usually gets worse as the patient continues to talk; and he may reach the point where he is unable to proceed.

But the disorganization of speech with which we are chiefly concerned is stuttering or stammering. This is a stress reaction, like the other psychoneuroses, and it may appear suddenly as a result of shock, or it may come on gradually as a result of continuing stress. Stammering usually has its onset early in life, before the function of speech is organized into a secure and dependable pattern.

The primary stammering is a simple disorganization of fluency, and the disorder can be described as a mild inhibition or speech block. As a rule, this disorganization of speech is a transient experience. It can be observed in any normal child who is startled or surprised. It can be observed with considerable frequency during the excitement of Christmas week. In the early formative years of a child's life there is a natural interplay between the organization of speech and the recurring disorganization. This is similar to the natural interplay between organization and the disorganization of bladder control. Confining our attention to speech, we see that the organizing process usually prevails and normal speech is established. But occasionally disorganization persists and the speaker becomes a stammerer.

At the outset the speaker is confronted with the simple disturbance of primary stammering. But sooner or later the secondary symptoms supervene. This can be quite soon. A small girl, less than three years of age, blocked a few times on the word *yes*. Within a day or two she had given up the word *yes* and had substituted the word *sure*. Here we discern two phases of secondary stammering—speech aversion and the use of synonyms. Usually the secondary symptoms do not appear so soon, but eventually the stammerer runs into all kinds of speech complications. He tries to force his way through the speech block, and he engages in struggle and contortion. He may hold the breath, or exhaust the breath, and the pattern of respiration is thoroughly disturbed. Conditioning ensues, and the stammerer is fearful of certain words and of certain people and situations. The telephone is usually difficult for him,

especially when he puts in the call and assumes the initiative in conversation. All these disturbing experiences lead to anxiety, panic and confusion.

It is obvious that we are dealing with a self-accelerating disorder very much like a cardiac neurosis. In the latter instance, the palpitation induces fear, and fear accelerates the palpitation. In the case of speech, stammering leads to fear and confusion; and these components intensify the stammering.

Stammering is self-accelerating because it is a psychoneurotic disturbance that can be seen and heard. In fact, it is the only psychoneurosis that can be both seen and heard. Most psychoneurotic symptoms are secret and silent. A man with nervous indigestion, for instance, can keep his trouble to himself. But if he is bothered by stammering, he proclaims the disorder in his social contacts. He does not even have the escapes of a man with writer's cramp or the man with functional dysphagia. The man with writer's cramp can change his job; the man with dysphagia can eat by himself. But the stammerer is thrown right into the midst of life. He has to talk in all kinds of situations; and he must face the ordeal and do the best he can.

And now where do we stand? As we study the writings on stammering for the past hundred years, we find that there has been a continuous search for an empirical cure. The idea is to remove the stammering and recover the normal speech that is presumed to lie beneath. The concept is something like erasing the misspelling from a blackboard and leaving the board purged of error. This fallacious concept has not entirely gone. None the less, there has been a change, and our thinking becomes clearer.

Yet we have not escaped our dilemmas. When the colleges and universities entered the speech field a few decades ago, their approaches proved quite searching. As a result of this work we have investigations of the stammerer's right and left handedness, studies of his blood sugar and the chemistry of his saliva. We have reports on pneumograms which analyze the stammerer's breathing, electrocardiograms which show the action of his heart, and electroencephalograms which reveal the functioning of his brain. We have taken the stammerer apart, but we have not done a good job of reassembling him. We do not readily view him as a functioning whole.

We are now at an impasse. We have not found the empirical cure, and we cannot discover a unit cause for the speech disorder. It is doubtful that a single cause or single cure exists. But if we re-assemble our patient and view him as a whole, we may be able to evaluate the problem. Taking a broad view and leaving out all considerations of personality traits, spasm, tremor, muting, aggression, guilt feelings, *etc.*, we can agree that the stammerer's speech function has become disorganized. This may be a mild disorganization, as exemplified in the commercial slogan, 'Winstons taste good like a—cigarette should.' Or the disorganization may be severe, so that the speaker nearly chokes in saying, 'I don't smoke.' And in our evaluation, it is clear that the speaker must think the words through if he is going to eliminate the hiatus in speech—'Winstons taste good like a cigarette should.' 'Thinking-through' is good therapy, whatever the severity of the block.

Manifestly the inner speech patterns the outer speech, but often the

inner speech is itself non-fluent. The fluency of the inner speech can be improved by a process which might be called 'mental hitch-hiking.' As one listens to good clear speech in a sermon, a lecture or a broadcast, he can accompany the words in his own silent thinking. In a broadcast at home he can venture talking aloud. Often the pupil can tell from the context how the sentence is going to end, and he can keep abreast of the speaker during much of the program. In any event he can hitch-hike phrases during pauses, and of course he selects a speaker who does not out-run him.

The radio and television can be enlisted in the exercise. Pauses are made by turning down the volume-knob, and the hitch-hiking proceeds in a leisurely manner. Phonograph records with pauses are available for the hitch-hiking technique.[1]

Ear-training and mental hitch-hiking are especially helpful in establishing dependable speech patterns in young children. The child can learn the sound and the feeling of good speech by listening to it, accompanying it and repeating it. Meanwhile, the pattern is presented by the teacher, by tape recordings or phonograph records. Naturally the play-lessons must be on a daily rather than a weekly schedule. In this auditory learning process, the child actually identifies himself with the fluency-feeling of normal speech. Here one might speak of an identification process or of 'identification therapy.' The term is more elegant than the phrase 'hitch-hiking,' and it describes the natural process by which a child learns to organize his speech.

Speech, of course, can become *dis-òrganized;* and when this happens, it does so before the organizing process is complete, that is, in early life. The resultant disturbance is recognized as stuttering or stammering. But once the speech is securely organized, it is practically invulnerable to stress. Thus, in the concepts of psychology, we can safeguard the child against stammering by organizing his speech during his early formative years. Moreover, we can do much to reorganize the speech after the pattern has fallen apart and the potentially normal speaker has become a stammerer.

[1]The records may be obtained from the American Speech and Hearing Association, 1001 Connecticut Ave., N.W., Washington 6, D. C. Sale royalties are assigned to the Speech and Hearing Foundation of ASHA.

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Christopher Reid

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John Christopher Reid (B.A., Oberlin College, 1958) is a graduate student of speech at the University of Missouri. This bibliography was selected from the publications of Dr. Raymond H. Stetson (1872-1950), Head of the Department of Psychology, Oberlin College, 1900-1939; Professor Emeritus and Director of the Oscillograph Laboratory, 1939-1950. In addition to the works listed, Dr. Stetson was the author of a mimeographed paper and other articles in the *Alumni Magazine* of Oberlin College and in *School and Society*.

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Abstracts

Phillip A. Yantis, *Editor*

Anatomy and Physiology

FREUD, E. D., Voice and breathing. A report on some new concepts. *Arch. Otolaryng., Chicago*, 67, 1958, 1-7.

The author reports that vibration of the vocal cords 'is not a purely peripheral phenomenon, . . . but is part of cerebral physiology (in which) rhythmic impulses of cerebral origin transmitted by the recurrent laryngeal nerve determine the frequency of the vibrations of the vocal cords.' He states, in addition, that adduction and vibration of the cords are independent; adduction is related to the respiratory function of the larynx, while vibration of the cords is related to its phonatory function; that 'the maintenance of the pitch, timbre, and quality of the voice is to a certain measure only regulated by the ear. Of decisive importance are the efferent regulations following interoceptive and proprioceptive sensations. These sensations may be precisely localized in the supralaryngeal tube.' (*A. C. Goodman, Washington University*)

HUIZINGA, E., Larynx, voice, animals and man. *Ann. Otol., etc., St. Louis*, 66, 1957, 679-690.

This article, originally a paper read before the International Voice Conference in Chicago in May of 1957, deals historically with speech development in man, the communicative significance of voice and the history of physiologic investigations of voice. (*C. N. Hanley, University of Washington*)

General

KELLY, M. R., Promoting the 'listening' habit in kindergarten and primary grades. *Amer. Child.*, 43, 1958, 12-14.

The ability to discriminate between sounds and speech sounds is basic to pupil success in the beginning stages of language and reading. The author suggests an overall program in auditory discrimination and offers examples of several kinds of activities designed to teach good listening. (*B. B. Schlanger, West Virginia University*)

KRAUS, R. N., The Air Force hearing conservation program. USAF Sch. Aviat. Med., *Aeromedical Reviews*, Review 3-58, Sept. 1957.

The three phases of the program are hearing testing, ear protection, and indoctrination. Three types of automatic audiometers are being evaluated, and all incoming personnel are tested. Muffs and/or plugs are issued along with an indoctrination talk to noise exposed personnel. (*J. C. Webster, USN Electronics Laboratory, San Diego*)

LEHROFF, I., Speech problems in children. *J. Pediatrics*, 52, 1958, 91-95.

Information relative to the field of speech correction is outlined for the pediatrician. The author summarizes the classification, proper time of referral, etiology and treatment techniques of the more prevalent speech disorders. (*B. B. Schlanger, West Virginia University*)

MASE, D. J., Speech habilitation and rehabilitation. *Postgrad. Med.*, 22, 1957, 614-621.

After outlining the incidence of speech disorders and describing the profession of speech therapy, the author discusses disorders of articulation, voice, language function and rhythm. The need for cooperation between the speech therapist and other disciplines in the total rehabilitation of the patient is emphasized. (*P. A. Y.*)

Phillip A. Yantis (Ph.D., University of Michigan, 1955) is Instructor and Research Associate, University of Michigan.

MASLAND, R. L., The prevention of mental retardation. *Amer. J. Dis. Child.*, 95, 1958, 3-111.

This entire issue is devoted to a survey of the research on mental retardation. It includes information on pathological studies, prenatal and postnatal causes of the condition, problems of the perinatal period, regeneration of the central nervous system and summaries of various surveys in the area. (*J. L. Shapley, University of Iowa*)

MECHAM, M. J., A selected bibliography on cerebral palsy—communication. *Cerebral Palsy Rev.*, 18, 1957, 13-17.

In this survey of the area of cerebral palsy communications, articles are classified in six categories: (1) speech problems, (2) hearing problems, (3) breathing problems, (4) speech habilitation, (5) reading and writing, (6) congenital aphasia. Articles in foreign languages and unpublished materials are not included. (*J. L. Shapley, University of Iowa*)

ROSENTHAL, F., Sociometric position and language structure. *J. educ. Psychol.*, 48, 1957, 483-497.

The investigator studied 40 second-grade children. Twenty children were of 'low' sociometric position and 20 were of 'high' sociometric position in terms of their language behavior as determined by an interview. The children were subsequently studied in relation to 10 aspects of language. Analysis of results showed statistically significant differences between the previously determined 'high' and 'low' groups on language behavior. (*H. J. Oyer, Ohio State University*)

ROUSEY, C. L., Stuttering severity during prolonged spontaneous speech. *JSHR*, 1, 1958, 40-47.

Using library cataloguing subjects as stimuli, 18 high school stutterers talked continuously and spontaneously for 10 hours per day during five consecutive days. Stuttering severity was measured at intervals and visible secondary symptoms were counted. Results show a significant decrement, generally, in severity, although none of the stutterers completely stopped the observable behavior. Two of the group increased stuttering behavior during the period of observation. The need for a study of diagnostic criteria to differentiate prognosis is discussed. (*B. A. Landes, Texas Technological College*)

SHERMAN, D. and MCDERMOTT, R., Individual ratings of severity of moments of stuttering. *JSHR*, 1, 1958, 61-67.

The reliability of a single observer's ratings of severity of stuttering was studied experimentally. Results indicate that these ratings are statistically reliable, even for 20 moments of stuttering, although absolute results of one observer's values are not necessarily related to those of another observer. Clinical implications are discussed. (*B. A. Landes, Texas Technological College*)

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Tape recorders. *Consum. res. Bull.*, 41, 1958, 10-14.

Eleven tape recorders in the under-$300 cost group are described in terms of 23 characteristics of performance and construction. Each is evaluated and given one of three preference ratings. (*W. L. Thurman, Eastern Illinois University*)

Pathology

ARNOLD, G. E., Dysplastic dysphonia: minor anomalies of the vocal cords causing persistent hoarseness. *Laryngoscope*, 68, 1958, 142-158.

'The well-known definitions of the various aspects of human oral communication are recalled. The basic function of communication is human phonation. It may be disturbed by many abnormal conditions, including congenital anomalies of the larynx. These malformations may affect all parts of the voice organs, and are particularly harmful to the voice if they disturb the symmetry and fine coordination of the vocal cords. One discrete cause of such dysplastic dysphonias is seen in the well-known condition of double vocal cords. This disability is described in detail and illustrated by a typical case.' (*Author's summary*)

BATSON, R. and MCCONNELL, R., A study of the hearing level following severe poliomyelitis. *Amer. J. Dis. Child.*, 95, 1958, 139-145.

A consistent hearing loss was found in 37 extensively paralyzed poliomyelitis patients with a mean age of 20 years. Thresh-

olds were obtained for each ear in octave intervals from 125 through 8000 cycles by air conduction and from 250 through 4000 cycles by bone conduction. Speech-hearing testing, using the Harvard Spondaic Words and PB Lists as test material, was done by the monitored live voice technique in a two-room suite. The extent of hearing loss correlated significantly with the loss in vital capacity but seemed unrelated to age, sex, possible drug therapy or duration of disability. (*J. L. Shapley, University of Iowa*)

FLEMING, M., Relationship between stammering and aphasia. *J. S. Afr. logoped. Soc.*, 4, 1957, 3-6.

'Theories on the etiology of stuttering are reviewed briefly; the writer with 30 years of practice as a speech therapist, is dissatisfied with most of the explanations. The possibility of a relationship between aphasia and stuttering is considered; whatever the ultimate origin of stuttering, the writer believes that the influence of emotional trauma on speech must always be taken into account.' (Courtesy *Rehab. Lit.*)

HORMIA, A., Impairment of hearing in connection with craniocerebral injury. *Acta Psychiat. neurol. Scand.*, 33, 1958, 82-93.

The hearing defects in connection with craniocerebral injuries were investigated in a group of 135 war veterans. The audiometric pattern was one of a downward sloping type of curve. In one third of the cases the hearing loss was greatest at 4000 cps.

Correlations were found between the severity of the injury and the audiometric pattern. The hearing loss was most severe in cases with paroxysmal disturbance during electroencephalography. In concussions the hearing loss was more symmetrical than in the group of local injuries. In the cases with temporal or frontal injury, the difference between the hearing impairment of the two ears was significant. The hearing loss was greatest in the group of temporal injuries.

The results are in accordance with earlier investigations concerning the mechanism of hearing impairment in cases of craniocerebral injuries. The value of the results for the estimation of craniocerebral injuries is discussed. (*B. S. Street, Minneapolis*)

LAWRENCE, M. and YANTIS, P. A., Individual differences in functional recovery and structural repair following overstimulation of the guinea pig ear. *Ann. Otol., etc., St. Louis*, 66, 1957, 595-621.

Two series of guinea pigs were each stimulated by a different level of high intensity noise (150 db and 136 db at the drum membrane). Each animal was examined by the cochlear potential method for sensitivity before, immediately after and again after a 56-day recovery period. Following this last sensitivity determination the animals were sacrificed by intra-vital perfusion and the temporal bones removed for histologic processing.

The authors found: the average initial losses in sensitivity accompanying the higher stimulus level were 25 db greater; after 56 days, 60 per cent of the animals had regained sensitivity, 10 per cent remained the same and 30 per cent showed further loss in sensitivity to normal sounds; and the amount of initial loss does not seem to influence the rate at which the ear recovers. (*C. N. Hanley, University of Washington*)

PESTALOZZA, G., DAVIS, H., ELDREDGE, D. H., COVELL, W. P. and ROGERS, J. B., Decreased bio-electric potentials in the ears of senile guinea pigs. *Laryngoscope*, 67, 1957, 1113-1122.

'The bio-electric potentials produced in the ears of senile guinea pigs in response to stimulation by high frequency tone bursts showed elevation of the threshold for 3μv responses. Neural degeneration in the spiral ganglion, moderate changes in the hair cells of the organ of Corti and osteitis of the ossicular conducting mechanism were observed in the histologic preparations of the temporal bones. The bio-electric findings reflect the anatomical changes underlying both conductive and perceptive defects of hearing. Together the two sets of observations confirm our present interpretations of the anatomical sources and correlates of these bio-electric potentials. A presbycusis-like process does occur in the guinea pig and makes this animal suitable for more elaborate studies of the pathologic physiology of presbycusis.' (*Authors' summary*)

PFISTERER, H., Neue Erkenntnisse über die Schwerhörigkeit des Gaumenspalten pa-

tienten. (New knowledge about hardness of hearing in patients with cleft palate). *HNO, Berlin, 6*, 1956-1958, 307-309.

The hearing of 54 patients with cleft palates was examined. Only six had normal hearing. Among the remaining 48 cases air-conduction losses were prominent, but in the higher frequencies bone conduction was also abnormal. Early palatal repair resulting in a not too thick, not too short velum for adequate function in swallowing and speaking seem to prevent the development of severe hearing losses. It is doubtful whether adenoids contribute much to hearing troubles. At any rate adenoidectomy seems to be contra-indicated. According to Segre, the Eustachian tube is open during rest (if the patient does not speak or swallow) in cleft palate cases due to impaired activity of the muscles of the velum. In this way infections of the middle ear may easily occur. (*E. Froeschels, New York City*)

Rogers, E. J., Hemiplegia: its incidence and association with aphasia and fractures in a chronic disease hospital. *N. Y. St. J. Med.*, 57, 1957, 220-224.

An analysis of data based on review of 1317 charts which covered discharges and deaths from Bird S. Coler Hospital and Home, New York, from July 1952 to January 1955. This article deals only with data on hemiplegia, in relation to sex, age at time on onset, presence of aphasia, side of involvement, incidence of multiple strokes, and evidence of fracture. Analyses are quoted on the conditions predisposing to hemiplegia which would suggest the possibility of differences between the sexes, but the impression was not confirmed statistically. A higher incidence of aphasia than anticipated was revealed, particularly in left hemiplegic patients. Implications of the findings for general care and management of hemiplegic patients are discussed. (Courtesy *Rehab. Lit.*)

Rubin, J. A., Deafness in children. *Canad. med. Ass. J.*, 78, 1958, 51-53.

This article reports 100 consecutive children seen at a Hard of Hearing Clinic and gives the etiology, the type and the degree of deafness and the treatment recommended. In most patients the onset of hearing loss occurred in the pre-school years. The ratio of postnatal to prenatal causes was nine to one. Otitis media was the major cause of hearing loss, and a conductive type loss was the more prevalent type. Prenatal causes generally resulted in a non-conductive type loss. (*J. L. Shapley, University of Iowa*)

Tonndorf, J., The mechanism of hearing loss in early cases of endolymphatic hydrops. *Ann. Otol., etc., St. Louis, 66*, 1957, 766-784.

'Experiments were conducted on a cochlear model in an effort to find an explanation for the type of hearing loss incurred in the early stages of endolymphatic hydrops. Such models, upon increase in endolymphatic pressure, displayed: (1) A loss in sensitivity; (2) A shift in the location of maximal displacement amplitude along the cochlear partition toward the base of the cochlea (both of the phenomena were more pronounced for low than for high frequencies); (3) Harmonic distortion. These observations are paralleled by clinical findings which are generally accepted as being characteristic of endolymphatic hydrops: hearing loss predominantly for low tones; diplacusis; and lowering of the threshold for aural harmonics.' (*Author's summary*)

Wehrs, R. E. and Proud, G. O., Conductive deafness in children. *Arch. Otolaryng., Chicago*, 67, 1958, 16-19.

The authors report that in each of 72 children with conductive hearing loss on whom bilateral myringotomy and adenoidectomy were done, fluid was observed in the middle ear cavity and hearing improved significantly following surgery. They conclude: '1. The overwhelming majority of children with conductive type deafness are suffering from middle ear effusion. 2. The presence of normal tympanic membranes does not preclude a diagnosis of hydrotympanum. 3. Direct vision adenoidectomy, myringotomy, and spot suction are justifiable and advisable procedures in children with conductive deafness.' (*A. C. Goodman, Washington University*)

Psycho-acoustics

Corso, J. F., Proposed laboratory standard of normal hearing. *J. acoust. Soc. Amer.*, 30, 1958, 14-23.

Recent dissatisfaction with the current American standard for audiometric zero has precipitated a series of studies designed to explore the adequacy of this standard. The present paper is a report of one such exploratory study. Three groups of subjects whose age ranged from 18-24 years were tested with pure-tone stimuli from two audiometers through two sets of earphones. The results indicate significant differences between earphones as well as between male and female subjects. Consideration is given to the problem of redefining audiometric zero and tentative suggestions are made. (*B. A. Landes, Texas Technological College*)

Reger, S. N. and Voots, R. J., Experimental determination of threshold reliabilities for four methods of automatic, self-testing, pulse-tone audiometry. USAF Sch. Aviat. Med. Rep. 57-63, March 1957.

In this type of test a series of pulsed tones are presented to the subject and he responds by indicating the number of pulses (1, 2, or 3) he hears. The next series of tones are then automatically increased or decreased in level by 5 db (times 1, 2, 3, or 4) depending upon whether the response is correct or not, and on the program set into the machine. The four most promising methods of programming were tried out on 132 young adults (on 3 frequencies on 2 consecutive days). Results indicate that with a 5 db step attenuator differences between programs are not large enough to be significant. (*J. C. Webster, USN Electronics Laboratory, San Diego*)

Rehabilitation

Amidon, H. F., A report on a class for high school stutterers—are we meeting their needs? *Speech Teacher*, 7, 1958, 114-117.

Therapy goals for a group of high school stutterers over two consecutive years are discussed. Several specific procedures are explained. The author evaluates results of the programs and presents pertinent questions about all such high school group plans. (*W. L. Thurman, Eastern Illinois University*)

Barbara, D. A., Some aspects of stuttering in the light of Adlerian psychology. *J. individ. Psychol.*, 13, 1957, 188-193.

'In the stutterer speech is no longer only a means of communication, but has become a testing ground for social combat and for personal superiority. Instead of tackling his difficulty positively, his fear and discouragement and his oversensitivity lead him to the pseudo-comfort of an exaggerated goal, of personal privilege, and distance from others and from the tasks of life. By gaining insight, he may frequently overcome his conflict.' (*Author's summary*)

Barbara, D. A., Working with the stuttering problem. *J. nerv. ment. Dis.*, 125, 1957, 329-334.

The author feels that 'stuttering is an external expression of anxiety and contains within its ritualistic process all the neurotic defenses and attempts at solution in his striving toward unity.' He further feels that the approach to therapy must be directed toward the treatment of the total personality, rather than the symptoms. Broad techniques and specific goals of psychological therapy are outlined. (*P. A. Y.*)

Bergman, M., Binaural hearing. *Arch. Otolaryng., Chicago*, 66, 1957, 572-578.

This is an essay on some aspects of binaural hearing in the presence of hearing impairment. A preliminary experiment on one aspect is reported which indicates that in patients whose ears differ in sensitivity, localization of the source of sounds occurs, provided the level 'is above the audibility threshold of the poorer ear.' The author concludes that additional investigations are needed and he suggests several lines of attack. (*A. C. Goodman, Washington University*)

Carroll, V. B., Implications of measured visuospatial impairment in a group of left hemiplegic patients. *Arch. phys. Med.*, 39, 1958, 11-14.

'An analysis of errors on the Minnesota Test for Differential Diagnosis of Aphasia with left hemiplegic patients is presented in contrast with known test patterns of right hemiplegic patients with aphasia. The specific findings reveal a significant homogenous deficit in visuospatial, temporal, and numerical relationships as well as a similarity in behavior responses to the observed impairment. The therapy attempted is discussed and the patient's response is related

to known concepts of learning theory. The implications of the residual deficits are then related to the individual vocational needs of the patient.' (*Author's summary*)

GRAY, G. H. and JONES, H. W., JR., Experiences with the posterior pharyngeal flap in repair of the cleft palate. *Amer. J. Surg.*, 95, 1958, 304-308.

This is a report of the results of pharyngeal flap operations on 20 cases, most of school age or above, who had had a vomer flap as a primary repair. There were two failures, 12 with excellent speech, and six with good speech whose faults seemed caused by bad habits rather than by physical inadequacy. Sixteen of the 18 successes were able to inflate ballons. The authors concluded that adequate velopharyngeal closure with definite speech improvement can be obtained by the pharyngeal flap alone, without the addition of the push-back operation. (*J. L. Shapley, University of Iowa*)

HARTMAN, B. T., Study of therapeutic and functional values of hearing aids for the mentally handicapped. *Amer. J. ment. Defic.*, 62, 1958, 803-809.

Using six institutionalized subjects, this study attempted to determine the general functional merits of the use of hearing aids by auditorily-impaired mentally-handicapped subjects. The results of a 24-week program leads the author to generalize that the auditorily-impaired mentally-handicapped person can benefit from hearing-aid training and use. Among improvements noted were a reduction of psychological problems, greater participation in activities and gains in speech. (*B. B. Schlanger, West Virginia University*)

HERBERMAN, M. A., Rehabilitation of patients following glossectomy. Attempts to reestablish articulation and maintain normal nutrition. *Arch. Otolaryng., Chicago*, 67, 1958, 182-183.

'Two cases of glossectomy and radical neck dissection have been discussed regarding therapeutic techniques employed to improve chewing, sucking, and swallowing. It is possible with training to establish a substitute form of articulation in a glossectomized patient resulting in intelligible speech. The success of the training appears to depend upon (a) extent of mobilization and return of flexibility of muscles of facial expression, mastication, and muscles of the neck, (b) control of salivary secretion.' (*Author's summary*)

HOERNER, E. and HORWITZ, B., Diagnosis, prognosis, and rehabilitation in patients with aphasia. *J. Amer. med. Ass.*, 166, 1958, 1573-1576.

The paper presents a discussion of 'methods and benefits of working with aphasic patients within the framework of the general rehabilitation team setup, with emphasis on the language area.' Strong consideration is urged of the needs and goals of the 'whole patient.' (*W. L. Thurman, Eastern Illinois University*)

HOLCOMB, A. L., Adjusting the patient to the hearing aid. *Arch. Otolaryng., Chicago*, 66, 1957, 579-583.

This is a discussion of the limitations of hearing aids and of the consequent problems in learning to use an aid. The author provides specific recommendations to the audiologist designed to help the patient accept and use an aid to best advantage. He suggests that the audiologist has an important role in preparing the patient for and in advising him during the 'breaking-in' period. (*A. C. Goodman, Washington University*)

KILNER, T. P., The management of the patient with cleft lip and/or palate. *Amer. J. Surg.*, 95, 1958, 204-210.

This article describes the various types of operations for cleft lip and palate, the surgical techniques with respect to the type of cleft and the expected results. (*J. L. Shapley, University of Iowa*)

MCWILLIAMS, B. J., Articulation problems of a group of cleft palate adults. *JSHR*, 1, 1958, 68-74.

Analysis of articulatory disorders of 48 cleft palate adults reveals that although the subjects were highly inconsistent in the articulation of consonants, the [s] and [z] were most frequently defective. An outstanding characteristic was the distortion of consonant sounds which were produced correctly, in most cases, some of the time. (*B. A. Landes, Texas Technological College*)

PEEBLES, M. E., Meeting the speech needs of the child with a cleft palate. *Speech Teach.*, 6, 1957, 325-328.

Typical speech problems of the child with a cleft palate are presented and principles of therapy design are discussed. (*W. L. Thurman, Eastern Illinois University*)

RIESE, W., Petit traité de l'interrogatoire suivi d'observations faite dans l'interrogatoire des malades privés de l'usage de la parole. (Small treatise on interviewing succeeded by observations made in interviews of aphasic patients.) *Encephale*, 4, 1957, 437-467.

The author sees interviewing as an historically evolving communicative process between a 'good man skilled in public speaking' and a patient striving to become one—both in the philosophical and immediately applicable senses. Features of the process covered are: historical background, elements constituting the interview, technical rules, experimental thought, use of tests, moral implications, discriminative analysis of 'dialogue' as compared with 'interview,' meaning and true 'end' of the entire process. The final section, on interviewing aphasics, concerns and advocates application of the basic process to patients with brain lesions, the interviewer preserving as long as possible an atmosphere of *conversation*. With aphasics one makes the same 'appeal' to man's faculty or power of communication one makes with others, 'preserving resolutely his own status . . . respecting the patient's dignity.' Ways in which aphasia interviewing is productive are described by references to case histories, including polyglots. The author concludes that an interview conducted according to rules has a therapeutic, *i.e.* re-educational, effect. (*J. C. Collison, Medical College of Virginia*)

STONE, L., Facial cues of context in lip reading. *John Tracy Clin. res. Papers*, 5, 1957, 11 pp.

'This study was designed to examine the influence of three variables of facial context in lip reading: facial exposure, facial expression, and lip mobility. Sixteen filmed lip reading tests were made; each film presented one combination of the three facial context conditions. Two hundred fifty-six normally hearing lip reading subjects were tested. A non-parametric analysis of variance showed that facial contextual cues in order of importance in successful lip reading were lip mobility, facial expression, and facial exposure. Each condition was shown to be interrelated with the two remaining conditions.' (*Author's precis*)

TAAFFE, G. and WONG, W., Studies of variables in lip reading stimulus material. *John Tracy Clin. res. Papers*, 3, 1957, 21 pp.

'In a study designed to evaluate the influence in lip reading of characteristics of the stimulus material, lip reading difficulty values were related to various characteristics of (filmed) stimulus material. . . . Lip readers were groups of normally hearing college students with no previous experience in lip reading. The results . . . showed factors associated with success in lip reading to be a high vowel to consonant ratio. The pronoun "you" was found to be more easily lip read, on the average, than other parts of speech. Factors related to difficulty in lip reading were sentence length measured by the number of words per sentence or by the number of syllables per sentence; the number of vowels per sentence; the number of consonants per sentence; and word length, measured by the number of letters per word. Factors having no relationships to success or difficulty of lip reading . . . were visibility indices, sentence order, and the number of pronouns per sentence. . . . It was concluded that constituent variables in the lip reading stimulus material affected lip reading.' (*P. A. Y.*)

TROTTER, W. D. and BROWN, L., Speaking time behavior of the stutterer before and after speech therapy. *JSHR*, 1, 1958, 48-51.

According to Wendell Johnson's hypothesis, the amount of time which a stutterer spends talking each day reflects the degree to which he is handicapped by his difficulty. The present study shows that 13 of 15 stutterers showed significant increases in speaking time at the end of a three-month period of speech therapy. Possible explanations of these results are discussed. (*B. A. Landes, Texas Technological College*)

VAN THAL, J. H., Speech therapy. *Soc. Serv. Quart.*, 31, 1957-58, 122-125.

The author presents a rationale and quasi-history of speech therapy in the United

Kingdom. (*D. A. LaRusso, University of Washington*)

WILKERSON, W. W., JR. and HULL, F. M., Fundamental physiological factors to be considered in speech therapy. *Ann. Otol., etc., St. Louis,* 66, 1957, 809-816.

These authors stress the importance of understanding the nature and interrelationships of individual mental physiologic activities. They note that damage to speech-producing structures may be sufficiently extensive to preclude training, but one must carefully ascertain whether compensatory movements can be developed. (*C. N. Hanley, University of Washington*)

Speech Science

DOEHRING, D. G. and HARBOLD, G. J., The relation between speech disturbance and psychophysiological changes resulting from delayed speech feedback. USN Sch. Aviat. Med., Proj. NM 13 01 99, Rep. 5, Sept. 1957.

Changes in response resulting from a non-delayed *vs.* delayed speech situation were determined. Delayed speech caused an increase in forearm tension, heart rate, and speech level and a decrease in skin resistance, speech rate, and speech fluency. Negative correlations were found between (1) heart rate and speech rate and (2) heart rate and speech level. If the subject maintains normal speech rate and speech level during delayed speech feedback, his compensatory effort is reflected by an increase in the activity of certain specific response systems. The general increase in organismic activity (or stress reactions) that accompanies delayed speech feedback is not related to the severity of speech disturbance. (*J. C. Webster, USN Electronics Laboratory, San Diego*)

MOSER, H., DREHER, J. J. and OYER, H. J., One-syllable words. Ohio State Univ. Res. Fndtn. TR 41 (AF Cambridge Res. Cntr. TN 55-56) Astia Document AD 110093, June 1957.

This is a systematic listing of the monosyllabic words in American English. There are 16 lists of words, a list for each basic vowel and diphthong sound, and each list has every possible consonant and combination of consonant sounds before and after the vowel. About 9000 words are included and supplemental tables give frequency counts of which sounds occur the most often. A separate table of trade names is also included. (*J. C. Webster, USN Electronics Laboratory, San Diego*)

OYER, H. J., The relationship of mandibular movement to intelligibility. *South. Speech J.*, 23, 1958, 135-141.

Intelligibility was determined for recorded PB words uttered by speakers who (1) spoke normally and (2) then spoke with no mandibular movement. Recordings were observed at various S/N ratios. Results indicate that when S/N ratio is positive, normally uttered speech signals are more intelligible than those delivered with an immobile mandible. Intelligibility of both types of speech decreases as S/N ratio decreases. (*B. A. Landes, Texas Technological College*)

ROSEN, G., Dynamic analog speech synthesizer. *J. acoust. Soc. Amer.*, 30, 1958, 201-209.

The description of a dynamically controllable electrical analog of the vocal tract is given. This analog is capable of synthesizing speech sound sequences. Details of the electrical arrangement and operation are given. (*B. A. Landes, Texas Technological College*)

Testing and Measurement

BOCCA, E., CALEARO, C. and CASSINARI, V., La surdité corticale. (Cortical deafness.) *Rev. Laryng., Bord.*, 78, 1957, 777-856.

This article is an extensive summary of previous work by the authors and their colleagues on the role of the cerebral cortex, and primarily of the temporal lobe, in auditory function. Auditory defects not noted in conventional pure-tone and speech audiometry are observed with speech which is distorted through filtering, is interrupted, or is accelerated, and with long verbal messages. Right-handed patients with tumors of the left temporal lobe show poor discrimination for speech presented to the right ear; tumors of the right temporal lobe do not affect discrimination. A large, selected bibliography and a long English summary are included. (*R. Goldstein, Jewish Hospital of St. Louis*)

BURNS, W. and HINCHCLIFFE, R., Compari-

son of the auditory threshold as measured by individual pure tone and by Békésy audiometry. *J. acoust. Soc. Amer.*, 29, 1957, 1274-1277.

Twenty subjects with no demonstrable otological pathology were tested by standard automatic audiometry and by conventional pure-tone audiometry. Each subject was tested twice by each technique with one week between similar tests. Results thus obtained were analyzed to determine improvement of threshold with practice and reliability of the methods employed. It is concluded that measurement of hearing threshold by either method gives essentially similar results with comparable reliability. Improvement of threshold was of marginal significance. (*B. A. Landes, Texas Technological College*)

CHARGUESHVILL, A. K. and TOKHADZE, T. L., Ob obiektivnom metodie issledovania ostroty slukha s pomoschiu pletizmografii. (An objective method of investigation of hearing acuity with the help of plethysmography.) *Vestnik O. R. L., Moskva*, 1955, 3, 126-138.

On deaf-mute and malingering patients, the authors obtained a conditioned vascular reflex by combining a sound stimulus with cold stimuli. In most cases vascular reactions were aroused by sounds at threshold intensity. Different preparations (such as caffeine, chloral hydrate, phenocoll, dibasol) changed the vascular effect. Preparations which increase the excitatory process activated the vascular reaction at sound threshold; preparations which increase the inhibitory process depressed the vascular reactions. Conditioned vascular reactions of malingerers were not extinguished for a long period. The authors determined qualitative and quantitative indices of auditory function and were able to make an objective audiogram not only of monaural but of binaural deafness as well. (*B. V. Morkovin, University of Southern California*)

CORSO, J. F. and WILSON, J. F., Additional variables on the Bekesy-type audiometer. *Arch. Otolaryng., Chicago*, 66, 1957, 719-728.

The effects and interactions of testing time, attenuation rate, direction of frequency sweep and type of stimulus tone on the absolute threshold are studied. The specific conditions are (1) 1.5 and 5.0 db/sec attenuation rate, (2) 2.7 and 11.0 minutes total testing time, (3) low-high and high-low direction of frequency sweep and (4) continuous and pulsed-tone (one second on, one second off).

The values of mean absolute threshold obtained for 10 listeners under the various testing conditions are reported and analyzed. The general observations are (1) that the best estimates of threshold are obtained when the slower attenuation rate and the slower testing time are combined or when the faster attenuation rate and the faster testing time are combined and (2) that when the validity of the estimates of threshold and test-retest reliability are considered together, the best results appear to be obtained with a 1.5 db/sec attenuation rate, and 11-minute testing time, a low-high direction of frequency sweep, and either the pulsed or continuous tone. (*A. C. Goodman, Washington University*)

DAVIS, H., HOOPLE, G. and PARRACK, H. O., The medical principles of monitoring audiometry. *Arch. ind. Hlth*, 17, 1958, 1-20.

'Monitoring audiometry is an essential feature of any effective conservation of hearing program. This paper explains the medical principles on which monitoring audiometry is based and outlines a general plan for medical disposition of cases of hearing loss that is consistent with these principles.' (*Authors' summary*)

ELPERN, B. S. and EPSTEIN, A., An evaluation of two clinical methods used in determining the presence of the recruitment of loudness phenomenon. *Laryngoscope*, 67, 1957, 1208-1217.

The authors report on the results of the Lüscher and Zwislocki DL test and the Jerger DL Difference test evaluated in terms of the sensitivity of these methods to the presence of recruitment as determined by the Fowler test. The major conclusion is that neither of the DL tests is suitable as a clinical procedure. (*A. C. Goodman, Washington University*)

FOURNIER, J. E., The detection of auditory malingering. *Trans. Beltone Inst. for Hearing Res.*, No. 8, 1958, Le depistage de la simulation auditive. *Expos. ann. O.R.L.*, 1956, 107-126.

The patient who exaggerates a real hearing loss for purposes of compensation is less rare than the outright malingerer with normal hearing. However, the detection of malingering, exaggeration, sinistrosis and psychogenic deafness presents a problem to the audiologist. Along with a discussion of the 'veritable syndrome of insincerity' which these patients often present, classic and modern methods of detection are presented in detail and thoroughly evaluated. (*B. A. Landes, Texas Technological College*)

GERMANA, G., Audiometria con riflesso psicogalvanico in bambini sordomuti. (Psycho-galvanic skin reflex audiometry in deaf-mute children.) *Riv. Audiol. Prat., Milano*, 7, 1957, 69-92.

'At present the main problem of deaf-mutism is to detect as early as possible hearing residues. A short review of present day detection methods in children is made. The choice of psychogalvanic skin reflex methods is described, together with an outline of the physiological basis of the method itself. There follows a description of the technique of examination and of the apparatus used. To sum up, the author expresses the wish that psychogalvanic skin reflex examinations will eventually become accepted in routine diagnostic practice.' (*P. A. Y.*)

HARBERT, F., SATALOFF, J. and LERNER, S. S., Effect of masking on induced conduction deafness. *Arch. Otolaryng., Chicago*, 66, 1957, 584-587.

The effect of a wax-impregnated cotton plug in the external meatus on the amount of masking provided by a white noise at 95 db re 0.0002 dynes per square centimeter is measured on 20 subjects with total unilateral deafness. The response to bone-conduction stimuli delivered at the mastoid of the deaf ear is measured with the masking applied to the normal ear with and without the ear plug.

The authors suggest the following conclusions: '1. Eighty decibels re normal threshold of white-noise masking is inadequate to eliminate a conduction-deafened ear while testing the opposite ear by bone conduction. 2. There seems to be little correlation between the change in effective masking and the degree of conduction deafness artificially induced with a wax plug in the external auditory canal. 3. In this type of deafness, even a small impairment will require a well-marked increase in masking intensity if the ear is to be masked out. Until such time as either a more effective application or type of masking sound is used, clinicians should be aware of the limitations of masking a conductively deafened ear.' (*A. C. Goodman, Washington University*)

IRWIN, O. C., A third set of consonant substitution and omission errors in the speech of cerebral palsy children. *Cerebral Palsy Rev.*, 18, 1957, 11.

Tape recordings were made of 226 cerebral palsied children between the ages of 3½ and 19 years who repeated after the experimenter 17 words containing [s], [z], [ʃ], [ʒ], [r] and [l]. Results show significant differences in favor of omission over substitution errors, demonstrating, according to the author, that cerebral palsied children are unlike normal children in this respect. (*J. L. Shapley, University of Iowa*)

IRWIN, O. C., Word equipment of spastic and athetoid children. *Cerebral Palsy Rev.*, 18, 1957, 13-14.

The vocalizations uttered during a sample of 30 breath pulsations by 128 spastics, 86 athetoids and 52 tension athetoids were analyzed as to words correctly pronounced and words approximated. Neither that analysis nor one of phonetic elements and words yielded any statistical evidence that differences exist in the speech of the three groups. (*J. L. Shapley, University of Iowa*)

KALMON, M., MILLER, M. H. and FOWLER, E. P., JR., Marked improvement in bone conduction. *Ann. Otol., etc., St. Louis*, 66, 1957, 981-993.

'Each of the patients reported in this paper showed what looked like a considerable perceptive deafness according to accepted criteria for bone conduction readings. In each case, however, there was significant air and bone conduction improvement following a period of time in which either no treatment was given, or treatment not usually considered appropriate in other than middle ear deafness was administered. Possible implications of these findings are discussed.' (*Authors' summary*)

KODMAN, F., SCHNECK, P., STOCKDELL, K., THOMPSON, W. and SPIES, C., Identification of hearing loss by parents, teachers and audiometers. *Eye, Ear, Nose, Thr. Mon.*, 37, 1958, 103-105.

A sample of 194 children from grades two, four and six, in a school located in a low socio-economic area, were selected for hearing screening. Parents and teachers were asked to determine if their child or children had normal hearing or a mild-to-severe hearing loss. The parents were successful in detecting about 50% of the 30 db loss group and 38% of those having 15-25 db loss, whereas the teachers detected 24% of the 30 db group and 31% of the 15-25 db group. (*H. J. Oyer, Ohio State University*)

LEITH, W. R. and STEER, M. D., Comparison of judged speech characteristics of athetoids and spastics. *Cerebral Palsy Rev.*, 19, 1958, 15-20.

Three judges rated tape recordings of the speech of 60 athetoids and 40 spastics with respect to rate, pitch, loudness, articulation, intelligibility and degree of speech involvement. The two groups were not judged as significantly different with respect to deviation from normal for the aspects of speech considered. Differences existed between the two groups with regard to speech, pitch level, loudness level, articulation and intelligibility. Thirty-one per cent of the spastics as compared to 10% of the athetoids had no outstanding deviation of pitch characteristics. More athetoids than spastics were judged to have 'uncontrolled variability' and 'monotonous' pitch characteristics. (*J. L. Shapley, University of Iowa*)

LEREA, L., Assessing language development. *JSHR*, 1, 1958, 75-85.

Picture language inventories, which were administered to groups of normal, brain-injured, and aphasoid children, proved sufficiently sensitive to suggest their eventually becoming supplementary diagnostic tools in language retardation. (*B. A. Landes, Texas Technological College*)

LUNDBORG, T., Preoperative estimation of sound conducting apparatus ('transmission testing') in chronic otitis. *Acta Otolaryng.*, 48, 1957, 286-301.

To implement increasing concern for restorative hearing techniques, the author attempts to focus attention upon effective preoperative examination. In this vein, he relates his experience with 100 cases of chronic otitis. He concludes that 'with increased experience and better possibilities of estimating the conditions impairing the hearing, the cases which in our present state of knowledge are still denominated as "uncertain" could be treated with a greater chance of restoration.' (*D. A. LaRusso, University of Washington*)

MECHAM, M. J., A scale for screening level of verbal communication behavior in cerebral palsy. *Cerebral Palsy Rev.*, 18, 1957, 22-23.

The test items, which either test the child directly or else question the parent or teacher, were selected from among a number of standard language items from various sources. According to the author, the scale, which is to appraise the level of language readiness in listening, speech, reading, writing and general verbal communication, can in its present form be used as a screening device. (*J. L. Shapley, University of Iowa*)

MILLER, M., The current status of clinical hearing aid evaluation. *Audecibel*, 7, 1958, 6, 8, 17-18.

The purposes and techniques of clinical hearing-aid evaluations are outlined and discussed. The author recommends that caution should be used in the interpretation of discrimination scores obtained during hearing aid evaluations on persons with neural deafness who have not had experience with aids. He further emphasizes that test results may be improved following the use of an aid and a short period of auditory training. (*P. A. Y.*)

O'CONNELL, M. H., Auditory acuity measured by automatic and manual audiometry. USAF Sch. Aviat. Med. Rep. 58-13, Nov. 1957.

Auditory thresholds were established for 24 subjects on the Rudmose model ARJ-3 audiometer, on the Schl. Aviat. Med. model 56-2 automatic audiometer, and on the standard Maico H-1. The test results (1) of the ARJ-3 and the H-1 were significantly different at 2000 cps, right ear and 4000 cps, both ears, and (2) of the 56-2 and

the H-1 were significantly different at 500 cps, both ears. In general, neither automatic audiometer provided test-retest reliability results that were as good as the H-1. (*J. C. Webster, USN Electronics Laboratory, San Diego*)

PALVA, T., Post-stimulatory fatigue in diagnosis. *Arch. Otolaryng., Chicago*, 67, 1958, 228-238.

Pre-stimulation threshold is traced for one minute with a self-recording audiometer. After stimulation for three minutes with a tone at 30 db sensation level, post-stimulatory recovery is recorded during a two-minute period. The upper limits of fatigue for normal listeners at two minutes after cessation of the fatiguing tone are reported at 4-5 db at 500 cps, 7-8 db at 1000 cps, and 10 db between 2000 and 4000 cps. Listeners with conductive hearing loss and those with perceptive hearing loss without loudness recruitment show normal recovery. Many of the cases with loudness recruitment show normal recovery, while others in this group show abnormally poor recovery. 'It seems that the main value of post-stimulatory tests does not lie in diagnosis, but in picking out the cases which are abnormally sensitive to continued stimulation.' (*A. C. Goodman, Washington University*)

PARKER, J., The validity of some current tests for organicity. *J. consult. Psychol.*, 21, 1957, 425-428.

The Shipley-Hartford Retreat Scale, the Weigl-Goldstein-Scheerer Color-Form Sorting Test, the Wechsler-Bellevue Block Designs and the Wechsler Memory Scale were administered to 60 hospitalized patients, 30 having brain injuries of recent origin and 30 revealing no evidence of neurological involvement. The purpose of the study was to investigate the diagnostic acuity of these tests. Only the Wechsler-Bellevue Block Design test significantly differentiated the two groups. (*B. S. Street, Minneapolis*)

RUBENSTEIN, M. and KLEIN, L., The Weber test. *Acta Otolaryng.*, 48, 1957, 266-275.

Because of the lack of standardization in evaluating bone conduction, many professionals are reviewing older tests in the hope of discovering a solution to their problem. Rubenstein and Klein set out to test the clinical reliability of Weber's formula on 100 'qualified' patients at frequencies of 500, 1000, 2000 and 4000. The authors conclude that, despite some standard objections, the formula suggested by them (based on the Weber test) would be of aid to the conscientious otologist. (*D. A. LaRusso, University of Washington*)

SAFT, L., Audiometria directa pre y peroperatoria. (Direct audiometry pre-and peroperatively.) *Rev. esp. Oto-neuro-oftal.*, 16, 1957, 119-129.

A vibrator operating at audio-frequencies is applied directly to various portions of the ossicular chain during surgery for the alleviation of a conductive hearing loss. The patient's response to sound allows the surgeon to evaluate the role of each of the structures in the conduction process and helps him to decide on the most appropriate surgical approach. (*R. Goldstein, Jewish Hospital of St. Louis*)

SANCHEZ-LONGO, L. P. and FORSTER, F. M., Clinical significance of impairment of sound localization. *Neurology*, 8, 1958, 119-125.

Fifty normal subjects and 50 cases of different etiologies were required to localize sound while facing an eye perimeter blindfolded. Out of 21 cases in which the temporal lobes were involved, 19 showed impairment in the localization of sound, predominantly in the contralateral field. Among the non-temporal lesions there were four instances of abnormal sound-localization. Observations are made as to the apparent function of the temporal lobe in the localization of sound. This function is compared with the localization of touch and with the visual orientations of objects in space. The possibilities and limitations of the sound-localization test are discussed. (*B. S. Street, Minneapolis*)

SCHLANGER, B. B., Mentally retarded and/or aphasic. *Train. Sch. Bull.*, 54, 1958, 62-65.

A differential diagnosis between congenital aphasia, emotional disturbance and mental retardation is difficult because of symptom overlap. As such a majority of children with brain-damage and severe language delay do not fit neatly into a format that implies a secure knowledge of their etiology, therapy and prognosis. Rather than ruling out one or more conditions, an esti-

mate of each condition's relative importance might be more realistic. (*Author's summary*)

STRAUSS, R. B., Premedication in clinical audiometry. *Arch. Otolaryng., Chicago*, 67, 1958, 354-363.

The need for controlling or reducing limb and body activity without inducing sleep and without effect on hearing or on conditioned galvanic skin response is discussed. Mephenesin carbamate (Tolseram) is suggested as an appropriate drug and its effect on thresholds for pure tones of normal adults is investigated. Thresholds were estimated for 24 normal-hearing subjects with conventional and with PGSR audiometry following oral administration of mephenisin carbamate or a placebo. It is concluded that the drug has no significant effect on thresholds for pure tones measured with either conventional or pure-tone audiometry and that there are no significant differences between thresholds of the same persons measured by the two methods. (*A. C. Goodman, Washington University*)

SUMMERFIELD, A., GLORIG, A. and WHEELER, D. E., Is there a suitable industrial test of susceptibility to noise-induced hearing loss? *Noise Control*, 4, 1958, 40-46.

Tests to distinguish persons highly susceptible to noise-induced hearing loss have been proposed by various researchers. The theories upon which these tests are based, along with methods of administration, are critically analyzed with the conclusion that 'It is our considered opinion that *none* of the proposed tests are suitable even for field trial.' (*B. A. Landes, Texas Technological College*)

TOLHURST, G. C., Delayed response: effects upon speech reception and speaker intelligibility. USN Sch. Aviat. Med., Proj. NM 18 02 99, Rep. 74, Aug. 1957.

The intelligibility of PB and multiple-choice (MC) words was determined. Responses were made at 0, 1, 2, 3, 4, and 5 seconds after the MC words were heard, and 0 to 5 seconds after the PB word was heard. There were two types of responses, write down and repeat the word verbally. In both response types the MC word score improved with delay time. For PB's the score increased for write down but decreased for repeat with the longer delay. PB scores were generally higher than MC scores at least for 0 seconds delay. (*J. C. Webster, USN Electronics Laboratory, San Diego*)

WANG, G. H., The galvanic skin reflex. A review of old and recent works from a physiologic point of view. Part I. *Amer. J. phys. Med.*, 36, 1957, 295-320.

The author, an experimental investigator of the GSR for many years, draws together a great amount of information from his stated point of view. In Part One he describes the reflex, presents a short history of its discovery and investigation, and discusses briefly its physical basis. He then discusses the anatomic basis in some detail and follows this with the main body of his review concerning physiologic studies through 1956. According to the table of contents, Part Two will include observations and discussions of the GSR at various sub-cortical levels as well as at the cortical level. This will be followed by a section on psychologic studies, a summary and an appendix on techniques of recording the GSR. (*J. L. Shapley, State University of Iowa*)

YANTIS, P. A. and MAGIELSKI, J. E., Aural-harmonic and bone-conduction thresholds in the evaluation of cochlear reserve in clinical otosclerosis. *Laryngoscope*, 68, 1958, 159-188.

'Pertinent literature is reviewed, citing evidence for the post-operative improvement of bone-conduction sensitivity in the ear with a hearing loss due to clinical otosclerosis. It is emphasized that in most cases the measurement of bone-conduction thresholds in the ear with otosclerotic pathology may give an inaccurate picture of the true capability of the organ of Corti to respond to osseous stimulation . . . In order to compare the relative stability of the two techniques (bone-conduction and harmonic measurements) in the evaluation of cochlear reserve, air-conduction, bone-conduction and aural-harmonic thresholds were obtained before and after either stapes mobilization on fenestration surgery in 19 patients with clinical otosclerosis. A total of 20 ears was examined. . . . the aural-harmonic test was found to be a more stable measure than the bone-conduction threshold. . . . The aural-harmonic test . . . is proposed as an adjunct to a complete diagnostic evaluation of the patient with clinical otosclerosis.' (*A. C. Goodman, Washington University*)

Disability of Speech Resulting From Malpositioned Cervical Spine Following Poliomyelitis

Wallace A. Goates
James F. Bosma

Although disability of speech is a familiar residual effect of paralytic poliomyelitis, it has received little consideration in the extensive literature of this disease. It is mentioned occasionally as a symptom of the bulbar type of involvement with the pharynx as a common, but not exclusive, site of disability (*2, 5, 6,* 7, *9, 12, 15, 16, 18, 22*). The disorder of speech most frequently cited as resulting from this disease is hypernasality. Aphonia, dysarthria, diminished range of the pitch, intensity and duration of tone, and decrease in the intensity of tone also are reported. The quality of this speech may be muffled, harsh or aspirate and at times sound 'bubbly' as a result of phonation through secretions accumulated in the pharynx (*2, 10, 13, 19, 20, 23*).

Reports of spinal or bulbar-spinal form of poliomyelitis are essentially silent with regard to residual disabilities of speech. This might seem to imply that only poliomyelitis of the bulbar type affected speech. However, observations of a group of children and adults, recently seen over a period of two years in various degrees of severity and recovery from bulbar-spinal forms of this disease, have shown that this form may produce severe disability of speech.

Wallace A. Goates (Ph.D., State University of Iowa, 1937) is Professor of Speech in the Department of Speech and Clinical Lecturer in the College of Medicine, University of Utah. James F. Bosma (M.D., University of Michigan, 1944) is Professor and Chairman of the Department of Pediatrics, College of Medicine, University of Utah.

Purpose

In this study of postpoliomyelitic speech, patients were identified with severe to near complete speech disability resulting from paralysis and contracture of neck muscles and cervical lordosis and scoliosis. Other speech disorders following poliomyelitis are described in another report (*13*).

Lordosis and scoliosis commonly are observed in study of the spine. They have been identified in the lumbar and thoracic spinal segments accompanying muscle imbalance and disc degeneration (*3, 11, 14, 15, 16, 18, 20*). This condition is recognized in poliomyelitis (*8, 18, 21*). Similar involvement of the cervical spinal segment is identified less frequently and then usually with reference to trauma or disc degeneration (*14*). In this present study, effects of cervical spinal malposition

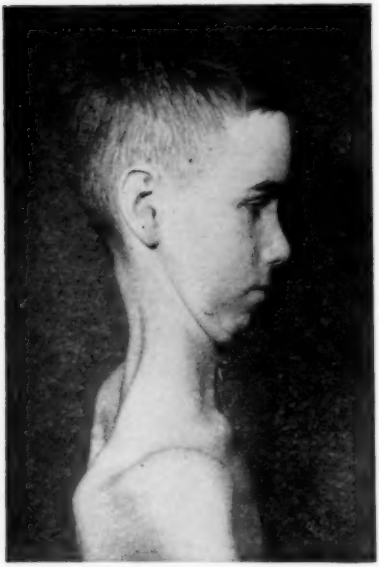

FIGURE 1. Patient J. C., showing anteriorward angulation of head with chin displaced dorsally and inferiorly. Anterior neck muscles are in contracture.

resulting from poliomyelitis are observed in relation to the speech of postpoliomyelitic patients.

Procedure

Twenty-one patients participated in this study as part of investigations of poliomyelitic disabilities of the pharynx (*6*, 7, *13*, *18*). The subjects included were male or female, ranging in age from four to 38 years. Degree of disability varied from mild to extreme. Their speech performance was evaluated using standard diagnostic techniques, supplemented by tape recordings, and in selected problems, oscillographic analysis of these recordings. Roentgenographic study was by Westinghouse roentgen apparatus at 200-300 MA, 45-55 KV, with the film at a 36-inch focal distance in a Fairchild camera operated manually or automatically at one-half second intervals. The patients were practiced and positioned before exposure. Roentgen visualization was facilitated by instilling Lipiodol® or barium into the patient's nose and mouth, in standard upright or supine position. Phonation for roentgen study was of the sound [a] given at a 'high' or 'low' pitch with reference to the patient's own pitch range. In some instances, the characteristic angulation of the head was altered and in some there was traction applied to the head so as to study aspects of lordosis in relation to the pharyngeal area.

Clinical Findings

Three patients having marked disability of speech are mentioned here,

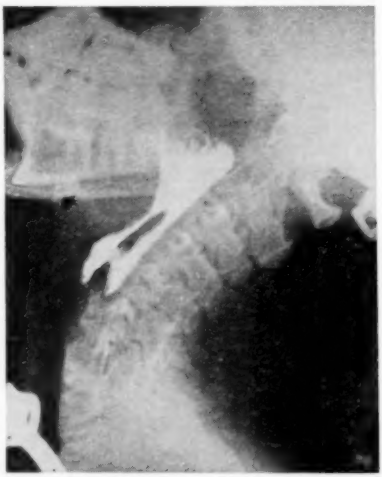

FIGURE 2. Roentgen study, confirming marked cervical lordosis, spinal impression into area of mesopharynx with anteriorposterior occlusion of meso and upper hypopharynx outlined by Lipiodol® bolus, anteriorward angulation of cranium and elevation and anteriorward displacement of hyoid.

because the degree and character of their disability exhibited more clearly the findings concerned. It is safe to relate these to less severe and similar cases when it is recognized that the disability of concern also is one of degree.

Patient J.C. was a boy 14 years of age who had acute bulbar-spinal poliomyelitis 22 months prior to this study. There was no report of neurologic abnormality previous to poliomyelitis. Speech had been normal. Tracheotomy was performed during the acute stage of this illness and a gastrostomy eight months later in relief of the nasal-oral catheter which had been maintained for feeding in the absence of swallow. Marked weakness of the muscles of respiration continued for 15 months following the acute illness, making respiratory aid necessary. Suction of fluid accumulations from the mouth and the trachea was required frequently. The patient required orthopedic supports for the trunk and legs.

At initial examination a disseminated weakness of the muscles of respiration, mastication, swallow, and the extremities was found. Neck muscles were severely contractured. There was a thoraco-lumbar lordosis and scoliosis and a cervical lordosis. The head was angulated anteriorward with the chin tightly displaced dorsally and inferiorly (Figure 1). Strength of head movement in any direction was markedly limited. The mandible was deviated laterally. Maximum opening of the mouth was 2.4 mm. at the central incisors. The lips could be closed but not pursed. The tongue was asymmetrically atrophied and the muscles asymmetrically weak. It could be extruded barely over the margin of the lips and movement within the oral cavity was limited. Velum exhibited contracture of tensor and levator muscles. Its mobility was markedly limited.

Intensity of voice was reduced to the level of a whisper. With great effort and adjustment of the head, the patient could increase this intensity, which resulted in voice of harsh quality. This performance could not be sustained. It was intermittent for a few words. Pitch range was limited to four notes. Articulation was slurred. The patient talked freely but was not easily understood.

FIGURE 3. Roentgen study showing asymmetric approximation of anterior and posterior mesopharynx walls outlined by Lipiodol®.

Roentgen studies (Figures 2, 3) confirmed marked cervical lordosis with anteriorward angulation of the cranium on its cervical pedestal, cervical spinal intrusion into the area of the mesopharynx, a posterior-anterior occlusion of the mesopharynx and upper hypopharynx with asymmetric and disproportionate median approximation of those two walls. The larynx and hyoid were drawn together and elevated toward the mandible.

Patient A.P. was a woman 39 years of age in whom acute bulbar-spinal poliomyelitis occurred 15 months prior to being seen in this study. There was no indication in her medical history of any neurologic impairment previous to this time. Speech had been normal. During the illness she was tracheotomized when laryngeal and pharyngeal function became critically impaired. After the first five months of disability and feeding by nasal catheter, a gastrostomy was performed. These two conditions were retained. When initially seen, the patient was receiving respiratory aid intermittently by rocking bed or tank respirator. Upper extremity and respiratory musculature both were weak.

FIGURE 4. Roentgen study confirming cervical scoliosis. Rotated vertebral bodies are clearly outlined.

Initial examination showed the head angulated anteriorward with the chin depressed into the neck and toward the chest. Head movement in all directions was very limited. Muscles of the neck were severely contractured. The mandible was retruded and nearly fixed in closed position with maximum opening of 1.5 cm. at the central incisors. The lips were mobile with asymmetric closure and much reduced tonus. Anteriorward tongue movements were limited to extrusion over the border of the lower incisors, to effortful asymmetric lateralward right movement within the oral cavity and to limited asymmetric central elevation. Velar motion could not adequately be evaluated, because of the restricted oral opening, but it appeared to be limited. Articulation was restricted by limited movement of lips, tongue, and jaw, and it was slurred. Respiration was weak with vital capacity markedly reduced. Voice was aspirate or harsh and barely audible, with pitch range limited to three notes. Attempts to speak were made with considerable effort and could not constantly be maintained. Speech could not easily be understood. Motivation to talk was greatly reduced. The patient volunteered almost no speech, preferring to write.

Roentgen studies resembled those of patient J. C., confirmed a marked cervical lordosis with compensatory anteriorward angulation of the cranium on its cervical spinal pedestal, cervical spinal intrusion into the posterior laryngeal structure, and a virtually complete anterior-posterior occlusion of the mesopharynx. There also was identified a persistent elevation of the hyoid and larynx with an approximation of larynx to hyoid and of hyoid to mandible.

Patient D.D. was a 23-year-old male former college athlete who contracted acute bulbar-spinal poliomyelitis 11 months prior to being seen in this study. There was no report of neurologic involvement, postural abnormality or serious illness prior to the onset of poliomyelitis. Speech had been normal. Tracheotomy had been performed upon admission to the hospital. It had been maintained with cannula which, on occasion in recent weeks, could be taped shut during the day but was required open during the nighttime or during exertion. He had been in a respirator for six weeks and for five of these weeks was unable to swallow. During and immediately following the illness there had been marked weakness of the right face, neck, right arm, shoulders, and back. Following the illness, physical therapy had been given for mobilization of the hyoid, and electrical stimulation of the anterior neck muscles. Limited but adequate function had returned to neck, arms, shoulders, and back.

At examination, the patient showed atrophy of the muscles of the neck and shoulder and a right facial weakness. Muscles of the neck and of right side of the mouth were weak. Opening of the jaw was limited to 4.0 cm. at the central incisors. When opened against resistance it deviated leftward at the beginning of the motion but returned when the mouth was closed. The neck demonstrated lordosis which in turn displaced the mandible dorsally.

The velum showed weakness on the right and consistently was deficient in elevation. It deviated leftward when at rest and shifted leftward upon stimulation and upon phonation. Gag reflex

was minimal with essentially no effective movement of the posterior pharyngeal wall. Swallow was accomplished with considerable effort. By direct oral examination the posterior pharyngeal muscle appeared paresed, and the transverse process of the cervical vertebrae apparently in scoliotic rotation was prominently impressed upon it. The tongue position was asymmetric when the tongue was at rest or under tension, but it was agile and movement was adequate for speech. No difficulty was shown in chewing. Because of difficulty experienced in swallowing solids, the patient habitually diluted them with liquids before swallowing. There was nasal regurgitation of liquids when taken in large quantities. Cough and sneeze were absent. The larynx and throat could be cleared of secretions with forced, abrupt exhalation.

The vocal folds could not be examined by indirect laryngoscopy because of displacement of structures of the neck. However, brief views were obtained through the tracheostoma to show abduction and a right cord weakness.

The voice quality was denasal and harsh, thus masking clear identification of pitch. It improved on attempted quiet speech. It had a 'bubbling' quality from secretions pooled in the hypopharynx which could be relieved with effortful swallow. Vocal intensity was minimal. Pitch range was limited to five notes. Both pitch range and quality of voice improved when harsh quality was reduced by manual compression of the alae of the thyroid during phonation. Articulation was adequate despite labial weakness. Respiration was shallow and resulted in gasping when taxed with effortful movement or continued speech. Patient talked willingly, with effort, and was understood adequately, but the abnormal quality of voice was quite noticeable.

Roentgen studies of the cervical spine confirmed a scoliosis (Figure 4) and severe lordosis seen with the patient in supine or erect position, although this curvature was reduced to more natural curvature in supine position. The lordosis could be relieved and normal position restored by manual traction to the mandible. The skull was angulated anteriorward on its cervical pedestal. Although distorted and compressed, the midpharynx was patent despite the abnormal cervical curvature. AP films showed it to be displaced about one cm. toward the left in relation to the cervical spine and the barium bolus penetrated the midpharynx only at the left margin. In lateral film, the pharynx appeared displaced posteriorly around the lateral margins of the cervical spine. Hypopharynx opened adequately and no pooling was observed (although its effect was heard during phonation). Nasopharynx was patent persistently in swallow and phonation but its near closure was possible at high phonation. In supine position, nasal regurgitation of barium was observed.

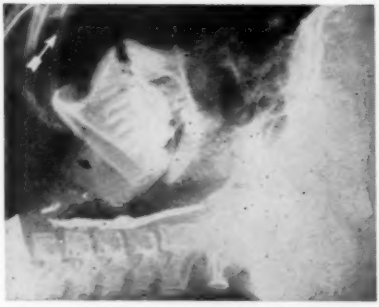

FIGURE 5. Roentgen study showing correction of cervical lordosis by using head positioning and manual traction applied to the mandible. Patent pharynx is shown by flow of Lipiodol® into nasopharynx.

Less marked distortions than these mentioned were found in other patients of this series. From the clinical and roentgen studies, there was shown with these postpoliomyelitic patients the following syndrome of speech impairment:[1] (a) marked lordosis of the cervical spinal column (Figures 1, 2), (b) anteriorward angulation of the cranium on its cervical spinal pedestal (Figures 1, 2), (c) cervical spinal

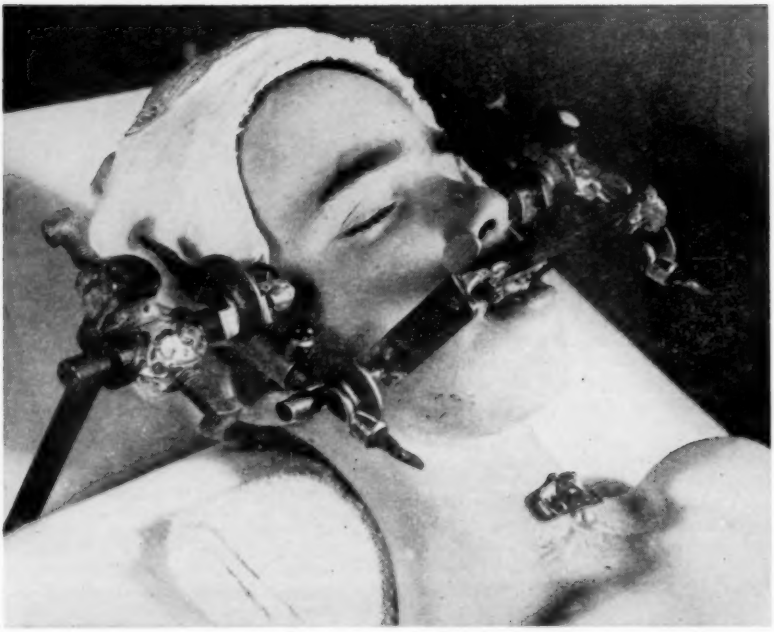

FIGURE 6. Traction appliance of fitted mouth piece, adjustable fixing clamps, plaster head positioning cap mould fixed to tilt table. When table was tilted and weight of patient was applied to the mandible, elevation of mandible and consequent traction resulted. Lordotic spine thus was straightened with resulting decompression of the larynx and pharynx.

scoliosis, and rotation of separate cervical vertebrae (Figure 4), and (d) severe contracture of muscles of the neck (Figure 1). These resulted in (a) a compression, lateral displacement, and a distortion of the pharynx at the supraglottal and laryngeal levels[2] (Figures 1, 2, 3); (b) a compression, flattening and lateralwise displacement of the larynx (Figures 2, 3); and (c) a restrictive fixing of the mandible against the neck (Figure 1).

[1]A preliminary report of this syndrome and its implication in the speech process was made by one of the authors in a paper delivered at the annual meeting of the American Speech and Hearing Association, St. Louis, Missouri, in 1954. Other aspects of the condition have been reported subsequently by Merritt *et al.* (*18*).

[2]Medialward displacement of the lateral wall and anteriorward displacement of the posterior wall of the pharynx have been mentioned in observations made by Lueck *et al.* (*17*). However, these seemed to be the result of a muscle imbalance resulting from paralysis of the oropharynx while those of our concern here were the result of paralysis and contracture which produced a direct mechanical pressure. Hadley (*14*) described dysphagia caused by deflection of the esophagus produced by a bony spur mass forming on the vertebral body. No report has been found of the condition observed here.

Trial Therapeutic Measures

Trial therapeutic attempt was made to improve the speech of these patients coincident with appropriate orthopedic and medical rehabilitation. Conventional speech therapy was employed along with previously untried techniques of a pulsing pneumatic expansion of the pharynx, and muscle resistance exercise of mandible, velum, lips and tongue. These were given with and without correction of the lordosis.

Speech was improved under both of these conditions except that the degree of improvement and its duration differed greatly with therapeutic circumstances. Modification of speech was minimal without correction of the malposition of the cervical spine and its effect upon the related soft structures. The point of diminishing return in therapy was reached early in the therapeutic period and the end results, while rewarding under the conditions, were far from satisfying speech needs of the patients. Therapy was more satisfactory during correction of the malposition of the cervical spine in which temporary correction of the lordosis was made and pressures upon the larynx and pharynx thereby relieved.

Temporary correction of the lordosis could be demonstrated and patency of the pharynx accomplished by applying manual traction to the cranium (Figure 5). This was accomplished more successfully with patient J.C. by way of a special mouth piece fitted to the upper teeth and hard palate through which pressure was exerted to the maxilla and the cranium (Figure 6). This was not a satisfactory device for permitting articulation of sounds, but it was suited adequately for function of voice. The patient was placed horizontally on a tilt table fitted with a foot piece which would take his weight as the angle of the table increased. A plaster mould was fitted to the table and formed a positioning device to hold the patient's head. To this was fixed the mounted cast plastic mouth piece held in place with adjustable clamps. When the patient was put into place on the table, the mouth opened and the mouth piece inserted in place, the clamps were adjusted to a condition of comfortable fit and then tightened. When this was done, the head was extended by rotation of the head piece and the table was tilted to an initial angle of 30 degrees, which by the end of 10 months had been increased to 60 degrees. The weight of the patient was distributed against the mouth piece with resultant elevation of the maxilla and the cranium. Decompression of the larynx and pharynx thus was accomplished. The pharynx became patent and more free movement of the larynx was achieved. In this circumstance the patient's voice improved significantly. By the fifth day of intermittent periods of this positioning there had been improvement in voice such that untrained observers could recognize it. Further progress was not of this degree, but improvement continued to a plateau at about the ninth month.

It was demonstrated repeatedly that results of speech therapy, with and without reference to the lordotic condition described, differed markedly. With the pharynx patent and the larynx free of compression, voice production could be achieved with reasonable identification and some control by the patient. After three or four weeks of therapy, the tracheotomy tube could be valved or closed intermittently, thereby insuring an improved air supply for speech and incidentally providing strong psycho-

logic satisfaction to the patient's efforts and motivations. At the fifth month the patient successfully could leave the tilt table for therapy. He then was fitted with a body brace supporting a head apparatus which maintained the head in partial extension at the neck. With this device, the mouth and mandible were free to articulate speech without the confining mouth piece used on the tilt table. Rapid improvement in speech followed.

When these conditions were repeated with other patients, improvement resulted in all cases. Patient A.P., who initially had a maximum three-note pitch range was able to produce a full octave range. The four-note range of patient J.C. became an octave and two notes. Their speech improved so that misunderstanding by untrained persons was rare. Both patients enjoyed their ability to successfully use the telephone in conversation and patient A.P. began to volunteer speech freely. With patient A.P. there was used an individually fitted body brace and plastic occipito-frontal positioning device instead of the tilt table. Patient D.D. was less disabled and pharyngeal occlusion was not complete. He was treated for a short time in positioning and without bracing or traction.

Discussion

The effect of cervical spinal malposition of structure upon the larynx and pharynx is recognized with relation to function of these structures in the production of speech. If the larynx is compressed or displaced between the cervical spine and the contractured or resistant anterior neck or strap muscles, its contours are altered and the normal function of the vocal fold, and those muscles effective in its adjustment, is rendered useless for speech, is distorted, or is without adequate control. Attempts at vocalization may meet with failure and result in whisper or in aspirate tones. If great effort is put forth with large volume of air expelled through the larynx, a harsh, relatively low pitch, inconstant and mostly uncontrolled tone may result from forcing vibration in the distorted larynx. This may not come from the vocal folds but from adjacent structure. Displacement of the mesopharynx may effect the distinctive vocal quality. It acts also with the lateral displacement and distortion of the adjacent hypopharynx to alter the otherwise normal size and shape and texture of this structure and thereby affect its resonance characteristics for speech sounds. Restrictive fixing of the mandible results in ineffectual use of the jaw and oral structures in the articulation of speech sounds. If the mandible is free or other structures are adequate, these sounds may be articulated.

Another condition which came under observation of this study and was confirmed with the roentgen studies (Figure 2), although not in the primary interest of this particular report, was the approximation and elevation or vertical compression of the larynx and hyoid structures. What effect this may have upon speech production is not yet determined.

Conclusion

The sequelae to poliomyelitis which results in cervical spinal lordosis and scoliosis have been observed to produce speech disorders. These arise from lateral displacement, compression on and immobilization of the larynx; distortion, displacement and compression with occlusion of the pharynx; a fixing of the mandible and reduction in

mobilization of articulatory mechanisms of speech. It has been demonstrated that when the lordosis was relieved, patency of the pharynx was restored, with mobilization of the mandible and release from compression of the larynx. Progress in improvement of speech was then accomplished satisfactorily. Speech therapy without the freeing of these structures proved to be unrewarding.

Relief from the postpoliomyelitic speech disability described here is dependent upon the position of the cervical spine and cranium. The etiology, correction, and prevention of spinal lordosis and scoliosis is not always understood. Nor can assessment be made to the relative responsibility which muscle imbalance, contracture, physiologic and degenerative changes in the intervertebral disc may assume in the development or maintenance of cervical spinal malpositioning (*11, 14, 21*). It would appear that retention, restoration or improvement of speech, such as pointed out in this study, will be greatly, if not entirely, at the mercy of the prevention or the correction of these conditions.

Under the conditions of the spinal malposition and maintained contracture referred to here, prognosis for speech recovery is poor and speech therapy more than likely contraindicated. Under conditions of correction of the spinal malposition, prognosis for speech improvement is greatly enhanced and speech therapy is indicated. How prevention or correction of the spinal lordotic and scoliotic conditions described can realistically be accomplished with the poliomyelitic and postpoliomyelitic patient is not apparent. The measures employed in this study attending the speech correction are short of being realistic in the life of almost any patient. Some prophylactic and corrective measures for the malpositioning and contracture symptoms have elsewhere been suggested in medical care (*18*).

It may be inferred that the numbers of instances of disability of speech residual to poliomyelitis are much greater than has been thought to be the case. While relatively few patients who have poliomyelitis do not survive today, the once optimistic view of recovery without sequelae, which was taken only a few years ago (*1, 11, 22*), is now more dim in the light of findings which cite a high incidence of persistent residual not previously anticipated (*17*). This high incidence was reported in 59.6% of 47 patients studied with recurrent disability of the pharynx. It has been common to anticipate a higher incidence of recovery from bulbar type poliomyelitis than from the spinal type. There is reason to argue that this is not so (*17*). The implications are that speech disability following poliomyelitis may be expected in a greater number of cases than heretofore were believed to exist. Its prevention and/or therapeutic relief remains a serious, unanswered problem.

Summary

In patients used in this study, effort was made to sustain mobile patency of the pharynx and to relieve pressure on the larynx through reduction of contracture and of cervical lordosis following poliomyelitis. When the effect of contracture was relieved, the pharynx became patent; the mandible was mobilized and speech could be improved; intra-oral manipulation was improved; the voice improved and came under control of the patient. With the pharynx occluded and the

larynx under compression from the cervical spinal lordotic column, the voice retained poor identity, if it was produced at all. Under these conditions the speech therapeutic recovery was so discouraging as to make speech therapy essentially futile.

Speech disorders residual to poliomyelitis may reflect gradations of severity and etiology and they may not readily be apparent to the speech pathologist or the speech therapist. Therefore, when there is any reason to suspect cervical spinal malposition or attendant contracture of neck musculature or muscle disability in that region, roentgen studies of the neck should be included in the patient's diagnostic work-up. With this guidance and possible correction of structure position and function thus identified, the efficacy of speech therapy more properly may be established and prognosis for recovery of speech clarified.

Acknowledgments

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Relationship Between Misspelling And Misarticulation

R. E. Ham

The field of speech correction has been divided in opinion about the question of when school children with articulation problems should be started in therapy. Some utilize the findings of Roe and Milisen's (*11*) study, that articulation problems decrease with maturation up to the fourth grade, to suggest that articulation therapy should not be concentrated in the early grades. Others have argued this ignores the fact that a speech defect untreated would create educational and adjustment problems in early school life. Studies have tended to show a general relationship between reading and speech. The present investigation attempted to examine further possible relationships between functional articulatory defects and spelling ability.

Related studies in reading tend to show that defective speech may handicap reading ability (*2, 8*). In spelling, Kay (*6*) found that a class showed demonstrable improvement in spelling following a program devoted to teaching correct pronunciation. Pass (*9*) noted a 'high correlation' between articulation and spelling in high school students. Other authors (*4, 7, 12*) indicate that the speech defect itself affects spelling. Most of these studies were not specifically concerned with spelling alone and did not relate particular misarticulated words to their misspelling or correct spelling. In the present study, an effort was made to test the null form of the following hypothesis: Children possessing articulatory errors on certain sounds misspell words containing these defective sounds with significantly greater frequency than they misspell words pronounced correctly.

R. E. Ham (Ph.D., Purdue University, 1956) is Director of the Children's Speech and Hearing Clinic, Ohio University, Athens, Ohio.

Procedure

Test construction. It was necessary to construct a test which would adequately test both articulation and spelling. All words selected were checked so that all were in second-grade spellers, in first-grade readers and among the first 5,000 words of Thorndike's word list (*14*). The words were also selected on the basis of the frequency of misarticulated sounds: [s], [l] and [r] were tested in the words because they are commonly defective (*3*), late in development (*5, 10*) and high in frequency of misarticulation. Sounds were tested in the initial, medial and final positions. The words were further sub-divided on the basis of length, words of four letters, five letters and six letters being used.

Test population. Subjects were drawn from speech classes in schools of the Kalamazoo, Michigan, area and checked so that all were of normal

intelligence and proper age-grade level and presented only functional defects of articulation on one or more of the three sounds tested. Forty children were tested and were grouped into 25 second-grade students, six in the third grade, five in the fourth grade and four students in the fifth grade.

Test procedure. Twelve of the 24 test words were randomly selected for pictorial presentation in testing (using standard speech correction picture cards), and the other twelve words were presented orally, so that the effect of mode of administration could be studied. The articulation tests were administered individually on one visit, and the responses recorded phonetically. All error-words were re-tested for consistency of misarticulation and to aid reliability of testing. The spelling tests were administered on a second visit, using the same presentation methods described for the speech tests.

Test analysis. Raw data were organized to provide comparisons of the following factors: (1) spelling errors on correctly articulated versus incorrectly articulated words; (2) articulation errors on picture tests versus articulation errors on the oral test; (3) misspelling related to word length, using numbers of letters as criterion and (4) misspelling related to word length, using phoneme number as criterion. In each instance, the observed difference was expressed as a percentage. In order to translate simple percentages into meaningful figures that could be tested for statistical acceptance, z score formulae were used. In this technique, all raw percentages can be converted into z score equivalents and then placed in a range of z scores. The formulae take the difference between two percentages and treat it so that it can be placed on such a range. A p score is obtained through the following formula:

$$(1)\quad p = \frac{\bar{x}_1 + \bar{x}_2}{n_1 + n_2}$$

The resultant p was used to gain a standard deviation score for testing of significance:

$$(2)\quad \sigma fn_1 - fn_2 = \sqrt{p(1-p)\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}^{\mu = o}$$

The resulting Standard Deviation could be used to obtain any z, by formula

$$(3)\quad z = \frac{d - \mu}{\text{S.D.}}$$

in which d is the difference between the two percentages being tested and S.D. is the Standard Deviation score resulting from formula (2), as:

$$\frac{d - \mu}{\text{S.D.}}$$

in which d is the difference between the two percentages. Any z score obtained was compared against, *e.g.*, $z_{.95}$ or 1.96. If the z score was greater than $z_{.95}$, the particular null hypothesis could not be accepted.

Results

Articulation versus spelling. For the 960 test words (40 subjects, 24 words each), the following information was gathered in the analysis of articulation and spelling scores: (1) There was a total of 204 misarticulations, of which 109 were also misspelled. (2) There was a total of 756 correct utterances, of which 334 were also misspelled. (3) Of the 443 misspelled words, 76% were correctly articulated. (4) Of the misarticulated words, 53% were misspelled. (5) Of the correctly articulated words, 44% were misspelled. The difference between items (4) and

(5) was tested for statistical significance. Significance was found at the .03 level, indicating that in this sample, significantly more misspellings occurred on misarticulated words than on words correctly pronounced.

Mode of Test Presentation. Of the 204 misarticulated words, 91 (19%) were presented pictorially, and 113 (24%) were presented orally. The difference between them was not significant at the .05 level, or in this sample, mode of presentation had no apparent relation to the correctness or incorrectness of responses.

Word Length. On the basis of word length, number of letters used as criterion, the following results were found: (1) Misspellings on five-letter words and misspellings on six-letter words were not significantly different. (2) Misspellings on five-letter words were more frequent, at a better than .02 level of significance, than misspellings on four-letter words. (3) Misspellings on six-letter words were more frequent, at a better than .02 level of significance, than misspellings on four-letter words.

Phoneme Number. On the basis of word length, number of phonemes used as criterion, the following results were found: (1) Misspellings on five-phoneme words and misspellings on four-phoneme words were not significantly different. (2) Misspellings on four-phoneme words and misspellings on three-phoneme words were not significantly different. (3) Misspellings on five-phoneme words were more frequent, at the .01 level of significance, than misspellings on three-phoneme words.

Conclusions

Operating within the limitations of sample size, few sounds tested and restriction to functional articulation problems, it would seem possible to draw the following tentative conclusions:

1. Words that are misarticulated tend to be misspelled more frequently than words that are pronounced correctly. At a better than .05 level of significance, *the original null hypothesis cannot be accepted.* At no time was any spelling error related to the type of mispronunciation, *e.g.,* the child who said *wabbit/rabbit* was more likely to misspell the word than a child who said the word correctly, but the misspelling would not involve the *w/r* substitution.

2. The mode of presentation (pictorial and oral) had no significant relationship to the frequency of articulation errors. As a further check, it would be interesting to compare such scores with the results of tests utilizing simultaneous oral-pictorial stimuli. This part of the investigation would seem to relate to Templin's (*13*) research.

3. Maximal word lengths, on the basis of letter-number or phoneme-number, were significantly related to the frequency of misspellings.

4. It would seem, therefore, that the presence of articulatory problems in the early grades may tend to be accompanied by problems in other areas of language skills. One can only speculate whether the original articulation problems contribute to spelling and reading problems or whether all are facets of a general language skills deficit. If speech improvement is actually related to spelling improvement (*6*), it should be extremely valuable to assess whether or not improvements in articulation during therapy are accompanied by increases in spelling and/or reading ability. The occurrence of such findings (positive)

should extend the findings of this study and perhaps supply further justification for direct therapy in early grades as an educational measure as well as an aid to speech production.

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Speech Therapy With Mentally Retarded Children

Bernard B. Schlanger

Considering mental retardation as a dynamic rather than a static condition, improvement through speech therapy is possible in many cases even though the organic defect may be irreversible. In habilitating the retarded child's speech, the therapist can anticipate such factors as a reduced learning capacity, slow development and problems of maladjustment. The maladjustment often seems to be more closely associated with his reactions to environmental pressures than with his congenital or organic predisposition. This is usually reflected in deviant speech and language, with motivation to speak frequently lacking. Thus, in planning therapy, emphasis is placed on the emotional aspects of his communication behavior.

Since normal speech may be beyond the capacity of many retarded children, the goals of speech therapy are thereby limited. In order to realize the potential prognosis, therapy should concentrate on the reduction of negative interpersonal interaction and attempt to make communication rewarding. Therapy based on sound analysis, drills and the manipulation of articulators would not be feasible. A speech-in-use idea with pleasant and meaningful associations presented 'non-directively' is likely to prove more successful than direct practice in the production of speech sounds.

The group consisting of three or at most four children is best suited for therapy with retarded children. However, because of their multiple handicaps and aberrant behavior, most speech defective retarded children have to be seen individually in initial sessions. Young brain-damaged children, for example, may demand all the therapist's attention, refuse to participate and so stimulate the group that no positive learning is possible.

The advantages of group therapy are evident. It offers strong motivation for improved communication and a spontaneous interaction which heightens each child's responsiveness. It also offers a means through which anxiety centering on the communicative act can be alleviated, since it permits the frustrated retardate to air his hostile feelings and gives him an opportunity for growth in self-appreciation.

The therapist, whether working with individuals or groups, must utilize a completely flexible approach. This applies even more to the retarded than to normal speech defective children. Because coherent responses cannot be anticipated, particularly with brain-damaged children, an adaptive or opportunistic therapy and an em-

Bernard B. Schlanger (Ph.D., University of Wisconsin, 1952) is Director of the Speech and Hearing Clinic, West Virginia University.

pathic therapist are required. While there is freedom of choice of activities and expression for the subjects, the therapist must be consistent in his application of limits. Consistency is essential in order that the retarded child who is usually frustrated does not become more so.

The pattern of therapy in this approach: (1) attempts to inhibit behavioral characteristics such as hyperactivity and distractibility and channels the child's energy into positive constructive activities; (2) develops the child's appreciation of self as a person and offers psychological support; (3) motivates the need for speech by encouraging but not demanding verbalization; (4) promotes an appropriate attitude toward communication by developing an awareness of speech as a means of influencing the actions of others, and (5) stimulates through various sense modalities for the development of verbal associations, with stress on auditory perception.

The outline is neither all-inclusive nor rigid, and the therapist may emphasize any points that he feels need stressing. When, and if, the subject indicates readiness for it, a more direct approach is instituted.

It is important that frustration experiences centering around communicating be minimized. Efforts of the slow child to communicate are encouraged, and the listener accepts the blame if he is unable to understand what the child is saying. While the climate should be the same in encouraging both the normal child and the retarded child with delayed speech, certain differences are readily apparent. The habilitation of the retarded child takes a much longer period of time and a more self-controlled therapist. In addition, sociological, psychological and perceptual differences must constantly be reviewed and adjustments made to compensate for these differences.

Examples of activities used in promoting speech and language development in the young retarded child may include:

Sensory perception.

1. Auditory training to develop broad listening ability:
   - noise sources such as rhythm band instruments
   - sounds made by self and sounds made by external sources such as cars, bell, birds, animals
2. Activity with live and recorded music:
   - rhythm band
   - movement in time to music (march, clap, circle)
   - imitating instruments
3. Listening to storytelling, nursery rhymes, songs, pointing to pictures, turning pages

Expressive behavior.

1. Play materials to stimulate conversation and permit acting out of feelings:
   - rubber dolls (family figures), farm animals
   - clay
   - coloring crayons and finger paints
   - doll house and furniture
2. Naming things:
   - parts of body
   - clothing
   - book and magazine pictures
   - memory game using objects
3. Creative drama:
   - nursery rhymes
   - parties
   - social situations using stereotyped phrases

These activities constitute only a small portion of the many stimulating and motivating methods that can be used to encourage verbal responses. Speech manuals, adapted nursery school activities, and the therapist's ingenuity and imagination suggest a

multitude of activities that aid in stimulating speech and language maturation.

Therapy with the trainable mentally handicapped child in most instances should be thought of as a continuing diagnosis. In this way the therapist can determine more accurately the present level of speech and language and its potential development. He is then able to concentrate on those defective areas which block the attainment of the child's communication potential.

A session with two children illustrates a predominantly non-directive therapy approach. Tom is a post-encephalitic child with no motor defect. He is 7.5 years old. His I.Q. is 45, and his S.Q., 70. His potential has been estimated as 'educable.' Past behavior has been marked by disturbed functioning. Speech and language were, and still are, severely delayed. Until recently he had no meaningful words and produced only occasional grunts. He determinedly evaded communication.

The second boy, Bill, is a mongoloid child 9.5 years of age. His I.Q. is 32, his S.Q., 34. He was virtually mute until he was 7.5 years of age, although an occasional word would be whispered in imitative response. Both children were sorely in need of speech and language motivation.

A typical half-hour session with these two children consists of the following:

1. Ring toss in which the child 'counts' or uses an indiscriminate sound as each quoit is tossed at the peg. (The play utilizes large muscle movement integrated with the attempted verbalization.)
2. Children's records are played accompanied by actions named by the therapist (march, circle, clap hands, *etc.*).
3. Plastic toy tea service is used in an imaginary social situation in which the setting of a table, naming objects and passing food (raisins make good motivation) are tried.
4. Word discrimination is practiced in which the picture of an object named by the therapist is touched.
5. Rubber doll family figures are handled and named.

The wide variety of activities is needed to hold attention, for the children are distractible and constantly moving. They are permitted to select what they wish to do. As previously noted, the therapist practices opportunistically.

Examples of general activities applicable to the motivation of language development and improved speech among higher grade (educable) children with a C. A. of 13 or more years include:

1. Stereotyped social responses and conversation
2. Role-taking in life situations
3. Card games adapted for speech use and sentence development
   - Bryngelson-Glaspey picture cards
   - Playing cards
   - Old Maid
   - Simon Says
4. Sound discrimination games

The higher the intellectual and speech developmental level of the child, the more closely the therapist approximates activities used with normal speech defective subjects.

Role-taking by older children enables them to act out some of their problems. It includes such activities as telephoning, being interviewed, or waiting on table.

Multiple speech defects in addition to multiple handicaps are the rule among the mentally retarded. The slow learner with an articulatory disorder frequently has voice or stuttering defects. The alleviation of these symptoms is difficult because of the limited insight of the retarded child into his psychological problems. If aggressive tendencies are ameliorated,

or self-confidence is established, the symptoms mirroring maladjustment may disappear.

If no severe pathology is present, most of the retarded can produce correct speech sounds. A complete elimination of speech defects in spontaneous speech, however, is quite difficult and limited to the educable retarded child. Even among these higher grade children, articulatory errors frequently continue in spontaneous verbalization despite many sessions of therapy. Therefore, positive attitudes toward communication are often more important than the stress on 'normal' sound.

Communication goals for retarded children are limited by psychological and physiological determinants, but communication can be improved in many of them. The therapist can come closer to helping the child realize his expressive and receptive potentials by stressing positive attitudes toward oral communication through a predominantly 'non-directive' technique.

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The Relationship Between Self-Correction And Recovery From Aphasia

Joseph M. Wepman

In 1937, Piotrowski (*4*) reported the isolation of various indicators of brain pathology on Rorschach protocols. Subsequently, other researchers using the same projective test failed to confirm the consistency of appearance of all of Piotrowski's indicators, while attesting to the confirmation of others (*1*, *3*). Prominent in the confirmed signs was the one Piotrowski called 'impotence' (*2*, *4*). Baker (*2*) in her discussion of this sign said, 'Impotence (the giving of a response in spite of the recognition of its inadequacy, together with the inability to withdraw or improve it) . . . is one of the best signs for moderate and severe damage, probably because feelings of insecurity and inferiority become complicated with appreciable intellectual deficit.' Without becoming presently involved with Baker's psychological interpretation of its cause, the fact of the existence in most brain-injured aphasic patient's language of an 'impotence' factor should be recognized. It is with this factor and its implications that the present communication is concerned.

The ability to recognize and self-correct errors made in language production which is a commonplace in the behavior of the unimpaired speaker or writer is defective to some degree in almost every aphasic adult patient. The severity of the defect and its effect upon the patient is felt to be one of the best indicators of the extent of the language problem. The time it takes a particular patient to move from one level of the ability to self-correct to another is felt to be an excellent indicator of the prognosis for the patient.

Personal observations made over the past two decades on aphasic patients of all types point to the factor of self-criticism as one of the primary goals recognized by patients in language therapy. Many such patients have indicated that their difficulty in recognizing and in correcting the errors they make represents to them the aphasic difficulty they are having. They tend to look upon this problem as being the language impairment itself. Only as they see themselves improving in their capacity to be self-critical can they see themselves as functioning independently in language production. The possible usefulness of this observation in aphasia therapy will be commented upon later.

Disturbances in the ability to self-correct can be viewed along a continuum. At one extreme would be those patients who cannot recognize their own errors and cannot correct them when they are pointed out; at the other extreme would be those who can and do recognize their errors and

Joseph M. Wepman (Ph.D., University of Chicago, 1948) is head of the Speech Clinic, University of Chicago.

who correct them spontaneously. It is the movement through this continuum that seems of such importance to rehabilitation. The failure to move from one level to another is thought to be a bad prognostic sign, while speed of movement should be a good sign for recovery.

As an illustration, consider two patients. One at the time of his initial evaluation makes many errors of substitution, fails to recognize them and cannot correct them when the examiner points them out to him. After a period of time in therapy he seems able to repeat a few more words, may even substitute somewhat less often, but is still unable to recognize or correct errors as he speaks or writes. It is felt that as long as this condition exists, the chance of independent, spontaneous use of meaningful communication for this patient must be held seriously in question. A second patient who comes to therapy in essentially the same condition, but who begins to recognize his errors and who recovers some ability to make corrections when these and other errors are called to his attention must be considered a much better risk. For, in essence, this patient is approaching the behavior of the unimpaired speaker—he is able to reject errors of production—he is able to be self-critical to some degree.

While it is felt that the degree of loss in the capacity to self-correct at the time of an original evaluation of an aphasic patient is an indication of the severity of the problem faced by the patient, it has not been found that the degree of difficulty correlates with any eventual level of recovery. Rather, the degree of loss in this capacity indicates only the distance the patient must go before he can be said to be a recovered aphasic patient. The speed with which he passes through the various stages of self-correction is felt to be a better indicator of his prognosis. Thus, a patient who begins his therapy at a very low level, but who succeeds in rather rapid order in going from one stage to another is likely to be the more successful patient. While in contrast the patient who begins at a somewhat higher original level, but who fails to make much change in his ability to be self-critical is likely to plateau and reach a lower level of eventual spontaneous language.

To assist the aphasia therapist in objectifying his observations on language impotence as here described, the writer constructed the following eight-point scale:

Level 1. Fails to recognize errors made in any modality. Cannot recognize errors when they are pointed out and therefore cannot correct them.

Level 2. Fails to recognize errors in any modality. Can recognize them when they are pointed out, but cannot correct them.

Level 3. Fails to recognize errors in *either* speech or writing. Can recognize errors when pointed out, but cannot correct them.

Level 4. Fails to recognize errors in *either* speech or writing. Can recognize the errors when pointed out and can correct them with assistance.

Level 5. Recognizes errors made in *both* speech and writing. Cannot correct them without assistance.

Level 6. Recognizes errors in *both* speech and writing. Can correct errors in one without assistance, but not in both.

Level 7. Recognizes errors made in *both* speech and writing. Can correct them without assistance most of the

time but only with considerable effort and even then with some mistakes.

Level 8. Recognizes errors made in both speech and writing. Corrects them easily without assistance. May subvocalize as a means of self-correction before exposing his speech efforts.

While the scale was originally intended only as a method for structuring the problem, it is readily seen that the eight levels represent a hierarchy from mild to severe disturbance. No attempt has been made to make the steps of the scale equidistant. Undoubtedly intermediate stages could be described between each level. However, most aphasic patients can be placed somewhere on the scale and notations relative to change over time are relatively easily made. Because of this, the scale seems to have a potential use as a research tool, since it provides the numerical base for consideration of change which is so necessary in comparison studies either in longitudinal studies of single cases or in patient-to-patient research designs.

This potential as a research tool was something of an unlooked for by-product of the scale. If empirical data is forthcoming which confirms the thesis of the present paper, then aphasia research should benefit. Researchers into the processes underlying recovery from aphasia will have at hand a quantifiable criterion for estimating change over time, the rapidity of such change, the tendency toward plateauing, the tendency toward regression and other important factors about which so little is presently known. The difficulty of obtaining such data because of the complexity and breadth of the language act has always been a major deterrant to obtaining such knowledge. Some of the relationships between self-correction and the stimulus-response patterns of aphasic patients are now being studied and will be reported upon completion (*5*, *6*).

Some patients have been approached in therapy almost solely from the viewpoint of improvement in self-correction. This has been possible only with patients who have some recognition of their difficulty in communication. By using this outside criterion of improvement, rather than the intermittent or uneven function of the language act itself, a greater degree of motivation and independence seems to be obtained at a much earlier time in therapy. It places the process of recovery on a self-help basis, on the patient and his efforts rather than on the therapist. This involvement of the patient in his own recovery, in gauging his own changes and in working toward language-usage goals rather than word production has been found to be extremely beneficial in many instances. Some care must be exercised in the selection of patients for the method since it may bring on a greater recognition of the extent of a language problem than a particular patient can accept. This may produce some withdrawal or more anxiety about recovery. Most such difficulties can be avoided, however, by introducing the idea of self-correction slowly and insisting on it only as the individual patient seems able to accept it.

Summary

One of the more commonly seen psychological signs of brain-injury, called 'impotence' by Piotrowski (*4*) from his study of Rorschach protocols, has been found to be of value in describing the language behavior of such patients. Its importance as an indicator of success in therapy and a method by which it can be objectified

for use as a diagnostic and prognostic tool as well as in research has been presented. It is hoped that the research mentioned concerning the relationship of self-correction to other responses on aphasia tests will shed some empirical light on what has been up to now only a clinical observation (*5, 6*). The writer offers the scale for anyone's use in diagnosis, therapy or research, hoping it will bring some further order to this very complex field of aphasia.

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Book Reviews

Ernest H. Henrikson, *Editor*

BERRY, MILDRED F. and EISENSON, JON, *Speech Disorders: Principles and Practices of Therapy*. New York: Appleton-Century-Crofts, Inc., 1956. Pp. 573. $6.75.

The authors state that the book is intended for 'the student beginning his major study in this field. We believe this book contains the essential material for a fundamental course in speech correction entailing six to eight semester hours of credit. Because of the inclusion of detailed programs of therapy, illustrative material, historical journals, diagnostic tests, and so forth, classes in clinical methods and practices will find the book a useful text.'

The authors also state that the book is not a revision of their earlier book (*The Defective in Speech*, New York: F. S. Crofts and Co., 1942). There are 19 chapters and five appendices in the book. The topics covered in the chapters are 'The Nature of Defective Speech,' 'Correlates of Defective Speech,' 'The Normal Development of Speech,' 'Pathways to Speech,' 'Retarded Onset and Development of Speech,' 'Testing the Child Retarded in Speech,' 'Training the Child Retarded in Speech,' 'Correction of Articulation in Older Children and Adults,' 'Voice Disorders: I,' 'Voice Disorders: II,' 'Stuttering,' 'Therapeutic Approaches for the Primary and Young Stutterer,' 'Therapeutic Approaches for the Secondary Stutterer,' 'Speech Habilitation in Cleft Palate,' 'Speech Habilitation of the Cerebral Palsied,' 'Aphasia (The Brain Damaged),' 'The Congenitally Aphasic Child,' 'The Young Aphasic Child,' and 'The Handicapped in Hearing.' The appendices cover the following topics: 'Operating the Peripheral Speech Mechanism,' 'Supplementary Materials: Retarded Onset and Development of Speech,' 'Historical and Diagnostic Journals,' and 'Clinical Materials: The Handicapped in Hearing.' A large part of the chapter on 'The Normal Development of Speech' is identical with the chapter by the same title in the authors' earlier book. There is also much material in the current chapter on 'Stuttering' which is identical with the material to be found in the chapter of the earlier book entitled 'Halted Speech: The Stutterer.' However, this book is clearly more than a revision of the earlier book. In most instances the common subject matter has been entirely rewritten. At the very least, the earlier discussions have been up-dated by including references to recent discussions and research.

The chapter on 'The Pathways to Speech' covers such topics as the 'Neural Integration for Speech' and 'The Endocrine Co-ordinating System and Speech.' The chapter is written with authority and competence. While it is a major discussion of the topic, one wonders whether it is at a level appropriate for the 'student beginning his major study in this field.' Rather it would appear to be more appropriate for an advanced textbook.

In this reviewer's opinion, the chapters on cerebral palsy and aphasia are extremely well done. The coverage is systematic and complete. The discussions are clear and there is an abundant amount of suggestive material for both diagnostic and therapeutic procedures.

Chapter 5 on 'Retarded Onset and Development' places considerable emphasis on the organic bases for retardation. Some readers may prefer greater emphasis on such bases as faulty learning, intelligence, poor environment in explaining the same behavior. In a few instances the reader might wish for documentary support for such statements as 'There is considerable research, however, to support the view that

Ernest H. Henrikson is Professor of Speech and Director of the Speech and Hearing Clinic at the University of Minnesota.

physiological factors may account for the speech retardation of twins' (p. 110).

Chapter 6 on 'Testing the Child Retarded in Speech' includes the description of many measures for testing the child's speech. However, not all of the measures would be employed in the testing of every child and thus one might wish for the inclusion of more discussion concerning the rationale for using the various measures. Many will take exception to the statement that '*unlike other tests*, (italics are the reviewer's), the Clark Inventory presents for testing not only the consonants, but also vowels, diphthongs, and consonant combinations' (p. 118).

Chapter 7 on 'Training the Child Retarded in Speech' has an abundance of excellent drill material which clinicians will find very useful and suggestive. Again, some readers will question the rationale for some of the exercises designed to improve the speech and control of the articulators, *per se*. They may also wish to label as assumptions such statements as 'Labial ability has a tendency to produce lingual ability' (p. 139).

Chapter 9, 'Voice Disorders: I' is undoubtedly the chapter which many will criticize most commonly. The chapter discusses the normal and defective voice; determinants of voice; attributes of voice: pitch, loudness and quality; and the treatment of voice problems. The material is naively presented and is sprinkled with assertions which many authorities would consider highly questionable. For example, 'The drawl of the Mississippi mule-driver is not exclusively a phonetic problem; the voice also reflects the hypotonic and slow muscular coordination' (p. 190); 'Often linked with a constitutional lack of physical energy is *low intellectual vitality*' (p. 202); 'Although we formerly have calculated intensity from the product of the squares of the frequency and amplitude ($I = F^2 A^2$), recent researchers now maintain that there is no consistent relationship between the amplitude of vocal-fold movement and intensity' (p. 194). Readers may also question the criteria used in selecting the terms to describe voice quality. In general, the discussion of therapy techniques in this chapter is subject to considerably less criticism than the discussions of the nature and determinants of voice, although some of the exercises are directed to 'you,' the reader, as though the reader is the person with the voice problem.

Chapter 11, 'Stuttering,' is another chapter which contains material with which many readers will wish to take exception. It is recognized, of course, that the etiology of stuttering is a controversial topic about which there is wide divergence of views. However, it must be recognized that much of the documentation provided in this chapter does not include some of the more recent research. As a result, the presentation gives considerable emphasis to the 'organic' bases of stuttering. Some examples of important omissions are such works as those of Williams on masseter muscle action potentials (*JSHD*, 20: 242-261; 1955) and Hill on biochemical and physiological differences (*JSD*, 9: 245-261, 289-324; 1944). In this reviewer's opinion, the beginning student would be confused and somewhat misled by the treatment of stuttering in this chapter.

The two chapters on stuttering therapy, chapters 12 and 13, contain material which most people would accept with few reservations. In fact, they seem to be written with little consideration for the logical conclusions that would seem to follow from Chapter 11 on the nature and etiology of stuttering.

In summary, it must be recognized that the 'perfect' textbook will never be written. As with other attempts to cover the field, the quality of this attempt is variable. The extent to which the book will be used as a beginning text will depend not only on the instructor's personal philosophy but upon the organization of the various training programs. Certainly this book is a major contribution to the field and deserves a prominent place in the libraries of all professional workers who are concerned with speech and language problems.

D. C. Spriestersbach
State University of Iowa

Cutts, Norma (ed.), *School Psychologists at Mid-Century*. Washington, D. C.: American Psychological Association, 1955. Pp. 230. $2.50.

This report is the result of an endeavor by the Division of School Psychologists of the American Psychological Association to review the development, current status, and future trends in their field. At the Thayer conference held at West Point, New York, in 1954, the conferrees delineated the functions, qualifications, and training of their

workers as well as the practical activities in which they were engaged and the common problems they encountered. In addition, the delegates examined the professional responsibilities of school psychologists in the light of ethical concerns, social functions, and the cultural situation at large.

Other fields of endeavor might well emulate both the purpose and method of such a conference. The decision to clarify and redefine their goals and functions was reacted to favorably by the National Advisory Mental Health Council and resulted in a grant from Public Health Services of the United States Department of Health, Education and Welfare. Preparation for the conference consisted in the conducting of a number of preliminary studies and reports by individuals and local and regional associations which formed a knowledgeable basis for discussion and recommendations.

The final report edited by Dr. Norma Cutts should serve several valuable purposes. To anyone interested in historical perspective, it presents not only the growth of the field itself but also its kinship with Special Education, Departments of Child Study in public schools, testing programs, and services fostered by the Mental Hygiene and Child Guidance movements. It further supplies informative material for school administrators relative to the scope and implementation of psychological services in various types of communities. Matters of organization, ethics, professional training, accreditation, and status are treated sufficiently comprehensively to furnish guide lines for professional workers. There is an excellent chapter discussing the potential impact of the public school psychologist on community mental health, a chapter which does much to enhance the forward-look of the conference.

This book should be of interest to speech and hearing therapists whose specialization and responsibilities are somewhat parallel and whose services frequently benefit from and assist the work of the school psychologist.

JANE BEASLEY RAPH
Rutgers University

GANT, SOPHIA, *One of Those*. New York: Pageant Press, 1957. Pp. 88. $2.50.

One of Those is essentially the story of a Mongoloid child and his mother. The book covers approximately 20 years of intensive training and care, 10 years of which the mother and child spent in a formal teacher-student relationship throughout each week day. The book leaves little doubt that the mother was both devout and devoted. After she had received the diagnosis of Mongolism by the doctors, an assumption which she had made shortly following birth, she refused to accept the conclusion that he could not learn.

Holding firmly to her belief that 'God giveth understanding to the simple' (*Psalm* 119:130), Mrs. Gant began the arduous task of teaching her child to walk, to climb up and down stairs, to understand simple stories and to identify common objects. The ensuing long range program of care and training is described largely in anecdotal form with some attention to what the child learned and to the mother's frustrations and doubts which she relieved by turning to God.

Under Mrs. Gant's tutelage, her son Peter learned to read and write (they used a regulation textbook series), play the piano, violin, cornet and mandolin, keep a diary, read French, care for his daily needs and think for himself in a variety of contexts.

The book is obviously written for the relatively small group of parents who have accepted the care and up-bringing of Mongoloid children. For these parents she devotes much space to a spiritual message, 'Take courage, mothers of slow children . . . God hears and answers prayers.' Unfortunately, the instructional processes used are not explained in any detail. Nevertheless, Mrs. Gant has issued a challenge to the doctors and other professional groups who she says' . . . have not the slightest idea what to do with these mentally retarded children. In fact, it is a waste of time to consult them.'

The professional reader will regret that her descriptions of Peter are filtered through a mother's eyes and are not accompanied by any achievement or other test data, diagnostic information, or descriptions by professional observers. If indeed Peter has learned to translate *Conte Dramatique* (grade nine and 10 French) and to master the rigors of fourth grade arithmetic, perhaps he has quietly suggested that the learning potential of Mongoloid children should be revised.

The author includes almost no descriptions of her child's speech except to say that she has always understood him and that he can talk effectively to most people. Her lament about his physical limitations

indicates that his speaking and writing are labored, but even here she indicates that he has progressed beyond the stereotypes described in much of the literature. Mrs. Gant seems to derive strength and comfort from the belief that God will eventually complete Peter's mind. 'The Lord has the day, the hour and the minute all set when He will finish healing Peter's brain.' At the conclusion of the book, mother and son both apparently await this miracle of habilitation, while Peter continues to live a relatively satisfying but cloistered life filled with reading, music, prayer, and occasional excursions into the community.

RICHARD SCHIFELBUSCH
University of Kansas

GREENE, MARGARET, *The Voice and Its Disorders.* New York: The MacMillan Co., 1957. Pp. 224. $7.50.

This book grew out of a desire 'to provide a guide to the treatment of voice disorders, simple yet comprehensive enough to serve not only speech therapists but doctors and laryngologists, and more especially those in the many countries of the world where speech therapy is unknown and unpracticed.'

It is divided into two parts: the first 66-page section deals with the anatomy and physiology of normal voice production, with notes about several theories of voice training; the second section is concerned with a number of topics related to abnormal phonation. Among them are vocal strain and abuse, and their therapy; nasal dysphonias, hysterical dysphonia, disorders of pitch, esophageal speech (sic), and the voice disorders associated with the principal types of laryngeal pathology.

The author, who is an English speech therapist, has made a praiseworthy effort to bring together the information bearing on these important topics. As might be supposed, the goal of the book and its length do not permit a thorough treatment of the various dysphonias; yet it probably will prove of great use for the reader group to whom it is addressed. Even practicing professional speech therapists will, the reviewer believes, find the book a valuable addition to their libraries and it may have some place as a text. The sophisticated reader will raise questions about an occasional statement, but in general the information is sound and well presented.

JAMES CARRELL
University of Washington

SCHUBERT, DELWYN G., *The Doctor Eyes the Poor Reader.* Springfield, Illinois: Charles C. Thomas, 1957. Pp. 101. $3.75.

The speech and hearing therapist realizes that he is working within the larger area of language development. His knowledge must encompass specific information and techniques for the various facets of language, including reading.

The Doctor Eyes the Poor Reader might easily have been written about the poor speaker. If one were to delete the emphasis upon vision, the protagonist of the book could become the delayed speech case.

Dr. Schubert has done an excellent job of stressing the multiple causation of retarded reading. He presents detailed information about the evaluation of the reading-handicapped child. His listings of tests for hearing, vision, intelligence, personality and emotional status would be helpful to any therapist who works with children. The conclusion that an eclectic approach to remediation in reading is best applied equally well to speech therapy.

In his chapter called 'Doctor, How Are Your Reading Skills,' the author takes a slight excursion into reading improvement for adults. He emphasizes the necessity for doctors to increase their reading rate in order to keep abreast of their professional advancements. He might have pointed out the need to read at various rates for other purposes.

The book is well documented. In fact, the author is more a reporter of scientific studies than a presenter of new and challenging ideas. However, he has succeeded in writing worthwhile material in a simple form which should appeal to readers outside the field of language rehabilitation. *The Doctor Eyes the Poor Reader* is an excellent addition to doctors' offices, public libraries and the libraries of professional workers who counsel parents of children with reading problems.

MORRIS VAL JONES
Illinois State Normal University

SPEKTER, LOUIS, *The Pediatric Years.* Springfield, Ill.: Charles C. Thomas, 1955. Pp. 734. $12.50.

By training and because of their basic philosophy, competent speech clinicians and pathologists are concerned with the whole child. They view his speech deviation as one facet of a total person, a total person that must be kept in mind whenever any

modification is attempted relative to the speech. Obviously, they cannot, because of time and training limitations, investigate or completely understand all the related phases of the total individual. They will have to make extensive use of other specialists and specific contributions which they have to make. However, the speech clinician should not be totally uninformed about how even the areas of other specialists relate to his major interest. They will, therefore, welcome such an important book as *The Pediatric Years*. This is primarily a source book. It is not a textbook but a reference aid to workers in a number of areas. Its coverage is extensive, ranging from trends in the care of mothers to a brief discussion of pediatric procedures. Because of the extensive coverage, the various subjects taken up are, of necessity, dealt with somewhat briefly in many instances. However, a bibliography is included in relation to each subject discussed.

The pediatric years are, no doubt, most significant years relative to speech in both its normal and deviate patterns. Certainly, anyone concerned with the speech of children will find this book a helpful source of information and a valuable addition to materials which promote an understanding of the whole child.

ERNEST H. HENRIKSON
University of Minnesota

TEMPKIN, IA. S., *Glukhota i tugoukhost.* (Deafness and hearing loss.) Moskva: Medgiz, 1957. Pp. 427.

The author is a professor of the medical school of the University of Moscow. As an otologist, he addresses the physical hygienists, public health physicians, infectologists and pediatricians, at the same time the audiologists, school psychologists and the teachers of the deaf and hard of hearing children.

The book consists of a general part, where the author lays out his interscientific approach to the diagnosis, treatment and prophylaxis of hearing disorders; and of a special part, where he gives extensive clinical material on various diseases of the ear and, in the light of the latest research and findings, etiological and therapeutical analyses. He draws his material and research data from his own experience of 35 years of clinical work and investigations with his students and fellow scientists of different neighboring fields. His references cover a wide area and his bibliography consists of 15 pages of publications written by his countrymen and by foreign authors. Because of limitation of space for this review, the clinical part has to be well-nigh omitted and the rest of the book presented in the form of an outline of his approach.

The author's main postulate is that there exists a close interpenetration and interacting relationship between the physiological and pathological processes of the whole organism and the processes going on in the auditory organ. The principal path of this interaction lies by way of the peripheral and central nervous system. Physico-chemical conditions and trophic functions of the auditory organ are regulated by the autonomic nervous system. The mechanism of hearing disorders is complex and manifold; it works: (1) through the alimentary tracts of specific nervous tissues, such as the organ of Corti, the nerve fibres and the ganglionated cells; (2) through the changes in the endolymph leading to disorders; (3) through the increase of permeability of vascular walls resulting in exudates, and through other ways. The manifold pathological cochleo-vestibular reactions result from different hemodynamic shifts, which vary in their clinical manifestations and whose diagnosis is beset with many difficulties. Some patients with such manifestations may be erroneously diagnosed as having Meniere's disease. The character and localization of ear disorders depend not only upon peculiarities of the agent of the infection, but also upon the paths by which this agent reaches the auditory organ. The path of affection, to a great degree, is determined by the nature of the microbe or the virus as agents of infections and by their affinity to different tissues and systems, that is, by their tropism. Due to neurotropism of the central nervous system, the infection may pass a hematoencephalic barrier and penetrate the subarachnoid area. In this case it cannot help but penetrate into the lymphatic area of the inner ear. In view of the close interrelation of the physiological and pathological processes of the whole organism with those of the auditory organ, the close cooperation in diagnosis and in research of otologists and neurologists, infectologists and other specialists has proved to be fruitful.

Another postulate of the book is that there is a unity and interaction of the peripheral and central parts of the auditory

organ itself which is constantly functioning and interacting as a whole. The Soviet scientists refer to the auditory organ (using Pavlov's term) as to an auditory 'analysor.' The cortical part of the auditory analysor ends the path of the nervous impulses and has a function of higher analysis and synthesis of stimuli. The author traces the interrelation of hearing impairment with the function of the higher nervous centers. In different chapters he illustrates the influence of cortical shifts and of inhibitory process upon the hearing disorders. On the other hand, he emphasizes the reverse influence of deafness upon the patient's psychological state and social relations which additionally aggravate his auditory disorders and may affect his general behavior pattern.

In accordance with the author's conception of the auditory organ functioning as a whole in its peripheral and cortical parts and on the basis of the research into the reactions of the central nervous system upon the sound stimuli, he widely applies the objective audiometry to his differential diagnosis and investigations. The use of objective audiometry is found indispensable in the field of 'functional microsurgery of the ear,' specifically in intricate operation of fenestration mobilization of stapes and the restoration of the middle ear by tympanoplastics. In such operations for the selection of patients the differentiation is necessary between organic and functional disorders, between middle and inner ear affection and the involvement of the auditory nerve and of the cortical end of the auditory organ. Bekhterev's use of unconditioned reflex, of auropalpebral (blinking) reflex, and auropupillary (cochleo-pupillary) reflex has been elaborated by way of photoelectric registration of the blinking reflex and by way of application of vasomotor reaction. Plethysmograph combined with skin-galvanic reflex is used in conjunction with conditioned reflex technique. The sound generator of the audiometer is used as a source of the sound. At the same time an unconditioned reflex is applied by the direct current to a forefinger and a middle finger. The motor reactions of the hand and the respiratory movements of the chest are registered on a kymograph as reactions to the sound stimuli of differing frequencies. An important element in objective audiometry is the use of encephalograph indicating the electric activities of the cortex upon the sound stimulation. The phenomenon of 'auditory adaptation' offers additional valuable data for differential diagnosis between the diseases of the middle and inner ear. The perfected methods permit differentiation between the affection of hair cells, the auditory nerve and others.

The experiments of Pavlov and of his school show that the state of hearing is determined not only by chances in peripheral parts of the receptor, but also by the phenomenon of central inhibition of the auditory function. In these cases the auditory training may produce a disinhibitory effect. Such training of the patients, for instance, with early contusion cases yielded a convincing psychotherapeutic result. The patients, who failed to register speech frequencies and consequently had a distorted perception of speech, improved in their speech perception by auditory training and gained a 'combinatory' facility (that is, the ability to synthesize) which enabled them to compensate greatly their defect. The deaf and hard-of-hearing children gain a powerful stimulus for their mental development by auditory training combined with speech-reading and development of language. Utilization of their residual hearing for better speech, for more extensive communication and for increased experience improves their ability of better orientation in the hearing world. By way of conceptualization and organization of their experience they grow in their habilitation and acquire social adequacy. This result is brought about by cooperation of the otologists, audiologists, psychiatrists, psychologists and educators of the hearing impaired children.

The years after the World War II, according to the author, have been years of creative expansion in the development of a new approach to diagnosis, treatment, habilitation and prophylaxis of the deafness and hearing loss. The book of Professor Tempkin could have been improved by the use of an index, which is customary in America in books of this calibre.

Boris V. Morkovin
University of Southern California

News And Announcements

Severina E. Nelson, *Editor*

Significant Trends in the Professions

Many members must have sent Ray Carhart words of high praise for his discerning article, 'The Personal Need for Professional Unity.' One can be certain, too, that many reverberations have and will result to make it possible for ASHA to provide the stimulating climate for its membership which the author mentions. The following letter, which was directed to the Editor of this column, is a sincere appraisal of the 'uncharted waters of private practice' which should interest members:

> I just read Dr. Carhart's perceptive article on the need for professional unity in the February 1958 issue of JSHD. I've often wondered whether anyone in the ASHA was worrying about the problems he discussed. Some of us are so far from the communication circuits of the ASHA that we lose perspective and forget that other people around the country are meeting problems similar to ours.
>
> There was little ASHA policy to guide me when I went into private practice two years ago. I joined the American Psychological Association to satisfy some of my more pressing needs for professional unity and belonging. I subscribed to a professional liability insurance plan sponsored by the APA and also was eligible for health and accident insurance. The APA has established policies about private practice and I could compare my training and experience as a speech pathologist with the training required by the APA before it will approve private practice for a psychologist.
>
> I've spent many hours worrying about the legal definition of the speech and hearing fields, and about licensing and certification. The APA's journal, *The American Psychologist*, has been a gold mine of information about professional status and growth in the last five years. I've read that little journal avidly each month because many of its articles were concerned with just the problems of 'professionalism' with which I was struggling. I'm sure I'll always have a warm spot in my heart for *The American Psychologist*. It sustained me when I was feeling the most isolated and lonely.
>
> *The American Psychologist* has also had much to say about the problems of developing clinical psychology as an independent profession. Many of the journal's articles in this area are directly applicable to the matter of SCALIA vs THE AMERICAN PROGRESSIVE HEALTH INSURANCE COMPANY as described by Franklyn Elliot in the last issue of *JSHD*. Our professional autonomy is a precious heritage and is critically important to the future of the ASHA and its members.
>
> We are entitled to no professional status or autonomy, however, as Dr. Carhart points out, unless our experimentalists and theorists find a professional home in the ASHA. Research is the very backbone of a profession. Without enthusiastic and productive research we become mere 'technicians.'
>
> Also involved in professional growth, however, is the matter of private practice. Almost all mature professional

News and Announcements is edited by Severina Nelson, University of Illinois, assisted by the following committee: Richard Brett, Waukegan Township High School; Martha Black, State of Illinois Office of Public Instruction; Laura Wright, Alabama College; Helen Knight, Evanston Township High School; Katherine de Hirsch, Columbia Medical Center; Ronald Tikofsky, University of Pittsburgh; Sue Earnest, San Diego State College; J. Buckminster Ranney, Alabama Polytechnic Institute; and Charles Hutton, University of Illinois.

groups have a substantial portion of their membership directly serving the public in private practice. Many members of the ASHA are now engaged in private practice and many more will practice privately in the future. The welfare of the public is a big stake in this matter and so is the status and integrity of speech therapy and audiology as professions.

I hope that the ASHA will consider the subject thoughtfully in the near future and develop policies that will insure the ASHA as a professional home for those of us who have ventured into the stimulating but uncharted waters of private practice.

John L. Boland, Jr., Ph.D.

Recruitment continues to be the keynote in educational literature and programs. Closely involved is the need for superior teachers to attract superior students through liberal and thorough professional training. The Inter-University Committee on the Superior Student (ICSS), in its May Newsletter concerning *The Superior Student* (Vol. 1, No. 2), has published the findings of various honors committees to locate and nourish this student at all levels. But the vital ingredient in this great talent hunt is the superior teacher who can lead and attract through genuine discussion rather than the one who delivers edifying lecturettes. An honors proposal must be presented then, not as an investment in a few students, but as an investment in the total quality of the university; for as Henry James wrote, 'the alpha and omega in a university is the tone of it' and 'this tone is met by human personalities exclusively.'

Because many members of ASHA are involved in the training programs of speech and hearing therapists, mention should be made of *New Directions in Teacher Education,* by Paul Woodring, an interim report of the work of the Fund for the Advancement of Education in the areas of teacher education and recruitment. The Fund for the Advancement of Education is a philanthropic organization established in 1951 by The Ford Foundation to work in the field of formal education. Its chief activity has been the support of experimental programs which hold promise of advancing education in American schools and colleges. To date the Fund has been granted approximately $57,000,000 by The Ford Foundation. Over a six-year period, the Fund has devoted about four million dollars a year to this one complex problem—teacher education.

Those who are looking hopefully towards the five-year program will receive assurance that the liberal program thus gained from five years of study is no longer new and startling. Even salary has been considered so that lack of it will not block young ambitions. Some of the Fund's projects have endorsed stipends or fellowships during the professional internship, and some schools have provided a partial salary for the fifth year student. Realistically, the Fund recognizes that the present problems of teacher education and teacher recruitment are related: better teacher education will attract more and better people into the profession. The reader is warned, however, that because trends do not provide a sound guide to action, the Fund does not support any trend merely because it is a trend, and sometimes supports projects which go against trends but are believed to be in the public interest. A glance at the chapter 'A Look Ahead' gives a preview of the years 1970 and 1980 in the educational world. Address: The Fund for the Advancement of Education, 477 Madison Avenue, New York 22, New York.

Somewhere in America, cerebral palsy strikes every 53 minutes every day in the year. So does *Crusader,* the voice of United Cerebral Palsy, spearhead its prongs into the hearts of able-bodied men and women, who during the last seven years have given this organization $3,000,000 for research and training for the alleviation of this 'predictable crippler.' It has been postulated that this predictability may provide an important lead to unknown factors.

When big money supports research, hopes ride high because proof exists that someone has been convinced that a project can and must be accomplished. The pamphlet 'New Directions in Research in Cerebral Palsy,' 1956, reviewed the stupendous coast-to-coast program of organized research on the brain-damaged child as sponsored by the Research Council of United Cerebral Palsy. Today the newest report, 1957, is contained in an elaborate brochure, electrified by vivid photographs of brains, testing apparatus and laboratories, under the guidance of the Research and Educational Foundation. A review of studies now in progress is given: Part 1, Research on the Basic Nature of

the Brain; Part 2, Research on Prevention of Brain Damage; Part 3, Research on Management of Cerebral Palsy; Part 4, Training of Professional Personnel; Part 5, Index to Grants. The program is so extensive and so startling in scope that the reader will spend hours browsing through this 44-page booklet of research items and will return many times to enjoy the artistry of the photographs. Address: United Cerebral Palsy Research and Educational Foundation, Inc., 369 Lexington Avenue, New York 17, New York.

Many schools have offered speech improvement for elementary pupils for a number of years. Others are beginning to feel the impact of better speech for all and are warily beginning programs with the assistance of speech correctionists. Some are wondering whose job is involved—the classroom teacher's or the speech correctionist's. The sub-committee in charge of program planning in public speech correction for the 1958 ASHA convention asked supervisors of state and large city systems to indicate topics they would like covered in that program. Replies indicated no overwhelming concentration of interest, but the most frequent request was for discussion in the area of speech improvement. Widely divergent views on this subject seem to spring in part from varying ideas of what speech improvement means and who is involved. There appears to be a need for clarification of the term as well as some leadership in determining policies in this controversial field.

The *Special Education Newsletter* from the California State Department of Education (May 1958) carries a description of a pilot project on neurologically handicapped children being conducted in the Los Angeles district by John Howe, Consultant in Research and Guidance, Office of Los Angeles County Superintendent of Schools. According to the *Newsletter*, children with mild brain impairment, the hidden neurological handicap, which may cause a child to be physically overactive, restless and not too perceptive, will be studied. The project is to locate and to test, psychologically and medically, children who have severe learning difficulties or show atypical behavior; then to set up ten special classes, each with ten children enrolled, and to carry them on a pilot basis for a minimum of two years, during which time they will receive special educational and medical help. An equal or larger number of matching cases will be identified and studied for the same period in regular classes.

The extensive growth of western colleges and universities is mirrored in the number of new buildings and expanding programs to be observed in California. In the fall of 1958 closed-circuit television will be inaugurated at San Diego State College, making it possible to observe clinical techniques in speech and hearing therapy simultaneously in many classrooms. Plans have been completed for a new Speech and Hearing wing to include 10 practice rooms, acoustical unit, play and group therapy rooms, and three one-way vision observation rooms. Fresno State College Speech and Hearing Clinic will move into a two and one-half million dollar building in 1960. Long Beach State College will have a new speech and hearing building by 1959. The completion date of the new Rehabilitation Center of the Stanford Medical School has been announced as the end of the Autumn quarter, 1958.

Lost students to be discovered, science and mathematics to liberalize programs, superior teachers to stimulate and attract, superior students to provide crest and spray for universities, grants to push researchers into the unknown—every one of hundreds of brochures headline these forward, accelerating movements to learn more fast and to get there (somewhere) first with the most (students, money, brick and mortar). Some of this necessity for recruitment to provide security has overflowed into the stable, well-grounded medical profession. In the May 3, 1958, issue of the *Journal of the American Medical Association* there are 10 thought provoking discussions from the point of view of the demographer, sociologist, economist and medical authorities, on the massive population growth; changes in population as redistribution, mobility, age composition; changes in upgrading in terms of income, occupation and education; changes in disease pattern. The underlying question which promoted this symposium was: How many doctors will be enough in 1975, and where and for what will they most be needed? In passing, it is interesting to note that Dudley Kirk, Ph.D., believes that if smog does not smother its people and growth, California is destined to supplant New York as the first state of the

Union in population, and the continuing trek to the North and West will continue to overshadow all others. The discussion on 'Changing Dimensions of Medical Knowledge' by Hugh H. Hussey, M.D., is highlighted by his cartoon presentation of the team of clinical teachers fiddling on stethoscopes, Uncle Sam dripping with the so-called soft money for faculty support, Roger Price's droodle of a nude looking for a collar button which to the author suggests rather the need for unity between doctors of town and doctors of the gown, the hybrid scientist. These studies were presented at the 54th Annual Conference on Medical Education and Licensure held in Chicago, February 9, 1958.

The Office of Education, U. S. Department of Health, Education, and Welfare, has prepared an extensive publication, *The State and Nonpublic Schools*, with particular reference to the responsibility of State departments of education. The importance of the nonpublic schools (church related and private nonsectarian) as significant educational resources to the nation is stressed by the increase in elementary and secondary enrollment in these schools since 1899-1900 (8.02% of the total school enrollment in these grades, or 1,351,722 pupils) as compared to that in 1953-54 (which showed 13.08%, or 4,339,163 pupils). If this trend continues, the probability was expressed that in 1965, this number will constitute 14.60 per cent of the total elementary and secondary enrollment, or 6,840,000 pupils.

The major part of the publication reviews the constitutional provisions for nonpublic schools in every state. The study, the first of its kind, will prove to be a gold mine for those in State Offices of Public Instruction. For ASHA members, it would be interesting to know how many speech and hearing therapists serve this great enrollment of boys and girls. Address: Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Price, $1.25.

News and Announcements

The Bill Wilkerson Hearing and Speech Center is to be congratulated for its success in the establishment of the new million dollar facility in Nashville, Tennessee. Dedication services were held May 28, 1958.

A formal call for papers has been issued for the sectional meetings of speech and hearing disorders during the convention of the Southern Speech Association to be held the week of April 6, 1959, in Louisville, Kentucky. All papers, regardless of geographic area, will be considered. Address: Harold L. Luper, Speech Correction Area, University of Georgia, Athens, Georgia.

Kappa Delta Phi is promoting scientific research and professional training in speech pathology by offering grants of $500 to three doctoral candidates: Frederick S. Berg, Southern Illinois University, research on perception and learning of auditory signals; Lois E. Shefte, University of Wisconsin, evaluation of student teaching program for public school speech and hearing therapists; Harris Winitz, University of Iowa, investigation of language responses of stuttering and non-stuttering children.

Mooney-Rowan Publications, Inc., Severna Park, Maryland, is proposing a new service to speech and hearing therapists, to be known as *Audio Journal of Human Communication*. Each issue will consist of a 5-inch reel of tape recorded at the 3¾ inch per second speed, providing one hour of recorded material. Abstracts of professional papers, training or test materials will be recorded, depending on the interest expressed. The format of the *Audio Journal*, its contents and its frequency, will depend on the answers received from the questionnaire being sent to possible purchasers. If interested in this project, send for a questionnaire at the above address.

The English Language Institute, School of General Studies, Queens College, Flushing 67, New York, is offering a full-time, intensive program in English to meet the needs of students from abroad, United Nations personnel, representatives of foreign governments, and prospective citizens. Each student is tested upon arrival and assigned to one of three educational levels. Tuition, $240 per semester.

Since October, 1955, the Missoula Hearing Program has been in progress as a pilot study designed to provide for the eventual establishment of an effective plan for future hearing programs in Montana. In 1956-57, it was decided that screening operations in hearing would be conducted in half of

the schools in Missoula on an over-referral basis: that is, all children who exhibited any type of a-typical classroom behavior, not necessarily a behavior pattern associated with hearing loss, were to be referred by their teacher for screening. In this particular year, of the 700 referrals made, 140 were referred for further testing. Forty-seven were ultimately referred for medical checks. This program was planned by the Montana State Board of Health, State Department of Public Instruction, the Missoula City-County Health Office and the public schools.

The Connecticut State Department of Education is preparing a guide for the organization and operation of speech and hearing programs in the public schools. Thirty-five persons, representing superintendents of schools, directors of pupil personnel services, speech teachers and medical doctors, have served as consultants in the preparation of the bulletin. It should be ready for distribution by September 1958.

The State Department of Education, Jefferson City, Missouri, has issued an 'Administrative Guide in Speech Correction,' under the direction of Richard S. Dabney, State Director of Special Education. The bulletin presents short discussions on: application for a speech correction program; eligibility of pupils; specifications for speech correction rooms; equipment and supplies; the role of the speech correctionist; bibliography of references.

National Health Council held its 1958 National Health Forum in Philadelphia under the chairmanship of Dr. Abel Wolman and with many headliners serving as speakers, such as Dr. Luther Gulick, Dr. Pascal Lucchesi, Dr. Norman C. Kiefer, Dr. Jack C. Haldeman, Honorable Frank C. Moore. The theme—'Urban Sprawl and Health'—appears to be quite timely because of our fast changing communities and their new patterns of human settlement. A report of this health forum, including all addresses and discussions, condensed or in their entirety, is available. Address: National Health Council, 1790 Broadway, New York 19, New York.

'Tongues of Angels' is a film which is being released through television stations. It is reported to be an excellent presentation of a teen-ager whose stuttering is so severe and embarrassing that he pretends to be deaf. The cast includes James McArthur and Margaret O'Brien. Joseph Sheehan, University of California at Los Angeles, was consultant to CBS in connection with the script and direction of the play.

A year ago, leaders from the School for Speech Re-Education, Milan, Italy, under the directorship of Dr. Vittorino Pricolo, founded the *Associazione Italiana Largingectomizzati Rieducati Alla Parola* to assist in the extension of speech re-education in Italy. Professor Edoardo Testori, President of the Association, presided at the second convention of the Association in May 1958.

At press time for this issue of the *Journal*, nearly 100 papers had been received for the Eleventh Congress of The International Association of Logopedics and Phoniatrics which will be held in London, England, from August 17-22, 1959. According to Miss Peggy Carter, Secretary of the Congress, papers have been received from 19 countries. Over 20 papers have been received from the United States. All papers must be submitted by September, and a summary must be forwarded by November 15.

The following official reports will be presented: 'The Inheritance of Voice and Speech Disorders,' by Professor R. Luchsinger, M.D., Zurich, Switzerland; 'Defects of Articulation,' by Muriel Morley, B.S. F.C.S.T., Newcastle, England; 'The Physiology and Pathology of the Soft Palate,' by Professor Lucio Croatto, M.D., Padua, Italy. The official languages of the Conference will be English, French and German. Application forms and further information can be obtained from Miss Peggy Carter, L.C.S.T., Secretary of the Congress, 46 Canonbury Square, London, N. 1, England.

According to the UCP *Crusader*, ground has been broken for the new Cerebral Palsy Center of Queens, Inc., Jamaica, New York, the first Center in New York City to be devoted exclusively to the rehabilitation of the cerebral palsied. Edward Phillips, Executive Director, reports that the Center, which will cost $350,000, will provide vocational rehabilitation, recreation, and therapy facilities for approximately 400 cerebral palsied per year. In cooperation with the New York State Department of Vocational Rehabilitation, each trainee will be educated to use his unimpaired skills to obtain useful positions in private industry.

The Speech Development Clinic, under

the direction of Victor Garwood, William Perkins and Eugene Borghi, is now offering professional services to speech handicapped children and adults in the Los Angeles area. Therapy is offered on a private or group level, depending on the evaluation of the specific needs of the individual. Address: 3450 West 43rd Street, Suite 102, Los Angeles 8, California.

In Napa, California, parents of children having speech problems may charge out record players and albums of speech records to use at home for speech stimulation and practice. This was the joint project of Mrs. Charlotte Inman Corlett, speech consultant for the Napa City Schools, and the Crippled Children's Society.

Dean W. Roberts, M.D., Executive Director of Easter Seal Society, points out numerous expansions in the 1957 report for National Society for Crippled Children and Adults, Inc. Among them: 1400 programs of care, treatment and education, constituting an investment of $3,500,000 during 1957; half-million dollar headquarters building in Chicago's West Side Medical Center; in addition, centers and camps—clinical, rehabilitative, vocational—were opened up in various areas of Alabama, Arizona, California, Connecticut, Florida, Indiana, Kansas, Louisiana, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New York, Ohio, Oklahoma, Pennsylvania, Puerto Rico, South Carolina, Tennessee, Texas, Vermont, and Wyoming.

San Diego State College is making plans for the 1960 visit of Muriel Morley, Newcastle-on-Tyne, England. Her most recent publication is *Development and Disorders of Speech in Childhood,* Williams and Wilkins, Baltimore, 1957.

Kent State University, Kent, Ohio, reports construction of a four-million-dollar Speech and Music Center has been started. One building of the center will be the Speech and Hearing Clinic which is especially designed to accommodate the therapy and research programs of Speech Pathology and Audiology.

The National Society for Crippled Children and Adults announces that four nationally known doctors will be cited for their outstanding contributions in the field of cerebral palsy at the annual meeting in Dallas. Those to be honored are Drs. George G. Deaver, Professor of Physical Medicine, New York University-Bellevue Medical Center; Leslie B. Hohman, Professor of Psychiatry, Duke University Medical School, Durham, N. C.; Winthrop M. Phelps, Medical Director, Children's Rehabilitation Institute, Reisterstown, Md.; and Meyer A. Perlstein, Chief of Children's Neurological Service, Cook County Hospital, Chicago, Ill. The convention is to honor also Helen Hayes for her continuing interest in promoting research and direct service in helping children with physical handicaps.

The Society for the Psychological Study and Research in Language Disorders cordially invites clinicians from the fields of speech and hearing therapy to take an active part in the planning and development of this group. About 25 clinicians from several fields of therapy have formed this new group, which has as its main function, the exchange of clinical knowledge, insights and data. Monthly informal group discussions are being held. Address: Franklyn Elliott, 110-13 Francis Lewis Boulevard, Hollis 11, New York.

News has come from those who attended the Speech Association of Eastern States meetings in April that the most productive discussion was enjoyed in 'A Review of Recent Research in Speech Rehabilitation.' Another favorite was Robert West's symposium on 'Stuttering,' which was taped and will probably be reviewed.

Programs

The Sixth Annual Summer Seminar of Speech and Hearing Therapists of the Puget Sound Area has been set for August 18-20, 1958, at Beaver Lake Resort, located 20 miles from Seattle. Headlining the Seminar is Bryng Bryngelson, University of Minnesota, on the subject of 'Inter-Personal Relations in Speech.' A registration fee will be charged; meals are served at cost and lodging is available for the three-day session. Address: Pearl Mary Clark, 233-19th Avenue, Kirkland, Washington, and Irene Lewis, 16404 Kirkland Way, Bothell, Washington.

Colby College, Waterville, Maine, will conduct the Sixth Annual Institute on Industrial Deafness, August 11-20 inclusive,

under the direction of Frederick T. Hill, M.D., and Joseph Sataloff, M.D. The course has been extended for three days in order to include engineering for noise control. The objective will be to train physicians interested in the problem, nurses, plant engineers and others in initiating and conducting hearing conservation programs in noisy industries. The course includes basic otology, audiometry, noise measurement, ear protection and methods of noise control. Class will be limited to approximately 20 participants. Fee is $250, including tuition, room and board. The first week, which will constitute a complete course for doctors and nurses, will have reduced fee, $200. Address: William A. Macomber, Colby College, Waterville, Maine.

A new home for Hoosier speech and hearing handicapped children has been opened at Indiana University to provide better living and correctional facilities for these youngsters. The home, operated by the University's Speech and Hearing Clinic, will provide full-time living accommodations for boys and girls who need the guidance of trained clinicians. The Exchange Clubs of Indiana have purchased the former Zeta Tau Alpha house, which will accommodate 40 children, ages 5 to 17 years. The new building will be known as the Exchange Home for Children, and the program will be under the supervision of Robert Milisen, Ph.D.

Following a training program in the Bobath technique, June 23 to August 15, 1958, at Stanford University, the team of Mrs. Berta Bobath, F.C.S.P., and Dr. Karl Bobath will offer two weeks of instruction to physical therapists and speech therapists, August 25-September 5, at the Children's Hospital in Los Angeles. They will be assisted by Marie Crickmay, M.A., L.C.S.T., Canadian speech therapist who formerly worked with the Bobaths in London. Sponsors include Department of Special Education of Los Angeles State College, Children's Bureau of the State Department of Public Health and Crippled Children's Services. The School for Cerebral Palsied Children, Southern California, will provide for the demonstrations.

The University of Nebraska has completed a new audiology clinic and is now expanding its graduate study. The daily therapy program for preschool deaf children will be continued under the supervision of John Wiley, Director, Speech and Hearing Laboratories, and Ernest J. Burgi.

The Pittsburgh Hearing Society announces that the Community Hearing and Speech Council, composed of representatives from 18 organizations, is sponsoring a screening project for the hearing handicapped. The testing will be performed by students from the University of Pittsburgh, DePaul Institute, City and County Schools and the Western Pennsylvania School for the Deaf. Experienced interviewers from the above agencies plus the Bureau of Vocational Rehabilitation, Commonwealth Hearing Center, Psychological Services of Pittsburgh, County Health Departments, and Western Psychiatric Institute will be used to interpret recommendations for those having hearing loss.

The 1958 International Northern Great Plains Conference on Rehabilitation and Special Education is scheduled for August 20, 21 and 22 at the University of Saskatchewan in Saskatoon. A special institute on the problems and developments in the fields of physical, occupational and speech therapy will be featured. Address: G. Allan Rocher, Provincial Co-ordinator of Rehabilitation, Government Administration Building, Regina, Saskatchewan.

Meetings

Acoustical Society of America; Chicago, Illinois; November 20-22, 1958.

American Academy for Cerebral Palsy; Providence, Rhode Island; September 25-28, 1958.

American Academy of Ophthalmology and Otolaryngology; Chicago, Illinois; October 12-17, 1958.

American Occupational Therapy Association; Hotel New Yorker, New York; October 21-23, 1958.

American Psychological Association; Mayflower and Statler Hotels, Washington, D. C.; August 28-September 3, 1958.

American Public Health Association; St. Louis, Missouri; October 27-31, 1958.

Conference of Executives of American Schools for the Deaf; Clarke School for the

Deaf, Northampton, Massachusetts; October 5-10, 1958.

American Speech and Hearing Association; Hotel New Yorker, New York; November 17-19, 1958.

Association for Speech Therapists in Germany; Berlin, Germany; October 2-4, 1958.

California Speech and Hearing Association; Lafayette Hotel, Long Beach, California; October 17-18, 1958.

College of Speech Therapists, 'Some Aspects of Cerebral Palsy'; Leeds, England; October 2, 1958.

Seventh Annual Congress of the French Association for the Study of Phonation and Speech; Paris, France; October 16-19, 1958.

Eighteenth Congress of the French Society of Phonology; Paris, France; October 23-25, 1958.

Fifty-sixth Congress of the French Society of Oto-Rhino-Laryngology; Paris, France; October 20-23, 1958.

Third Annual Congress of the French Society for the Treatment of Voice and Speech; Paris, France; second week in October, 1958.

Fourth International Congress of Psychotherapy; Barcelona, Spain; September 1-7, 1958.

Fall Regional Meeting, International Council for Exceptional Children; Denver, Colorado; November 5-8, 1958.

Fourth Congress of the International Society of Audiology; Padova, Italy; October 2-5, 1958. Address: Professor Arslan, Clinique O. R. L. Universitaire, Padova, Italia.

National Association for Retarded Children; Philadelphia, Pennsylvania; October 8-11, 1958.

National Rehabilitation Association; George Vanderbilt Hotel, Asheville, North Carolina; October 13-15, 1958.

National Society for Crippled Children and Adults, Inc.; Statler-Hilton Hotel, Dallas, Texas; November 16-20, 1958.

Society of Hearing Aid Audiologists; LaSalle Hotel, Chicago, Illinois; October 9-11, 1958.

Speech Association of America; Conrad Hilton Hotel, Chicago, Illinois; December 29-31, 1958.

Assistantships, Scholarships, Fellowships

Boston University. Clinical Assistantships: Speech pathology and audiology. Available for graduate study toward advanced degrees. Half-time work in diagnosis and therapy with children and adults. $1000 for 10 months plus remission of tuition for nine credits per semester of the regular academic year. Assistantships may be renewed for second year. Summer session courses are also available. Assistants may enroll for Advanced Clinical Practicum in Audiology at the Massachusetts Eye and Ear Infirmary or in Brain Injury and Cerebral Palsy at the Joseph P. Kennedy, Jr., Memorial Hospital. Address: Wilbert Pronovost, Speech and Hearing Center, Boston University, 332 Bay State Road, Boston 15, Massachusetts.

University of Houston. Assistantships: Speech and Hearing Clinic. Stipend is $1500 per academic year for Master's candidate in Audiology. Twenty clock hours per week in audiological assistance. No remission of tuition. Address: Genevieve Arnold, Speech and Hearing Clinic, University of Houston, Houston, Texas.

University of Michigan. Assistantships: Speech Clinic. Twenty hours per week or less. Master's degree candidates, $690 per semester; doctoral candidates, $825 for first year, $875 for second year, $925 for third year. Summer session stipends are approximately half those for the regular semester. Seven divisions are open for study: Adults, Children, Dysphasia, Examining, Hearing, Student Clinic, or Research in Language Retardation in Children. Address: H. Harlan Bloomer, Speech Clinic, University of Michigan, Ann Arbor, Michigan.

University of Oregon. Assistantships and Fellowships: Department of Speech. For those interested in work towards the M.S., M.A., and Ph.D. degrees in Speech. Address: Chairman, Department of Speech, University of Oregon, Eugene, Oregon.

Phillips University. Community Speech and Hearing Center. Two positions in audiology and in speech and hearing therapy.

Applications accepted until September 1958, for audiologist, $6000-$8000 for a Ph.D and $4800-$7000 for an M.A. or M.S.; for speech therapist, $4200-$5500 for a B.A. or B.S. and $4800-$7000 for an M.A. or M.S. This Center, organized by United Cerebral Palsy Inc., is directed by T. A. Hedges, Enid, Oklahoma.

Purdue University. Research Assistantships: Speech and Hearing Clinic. Starting Summer, September or February. Twenty hours per week of research assistance on U. S. Office of Education research project involving development and evaluation of clinical methods for mentally retarded. $1500 for regular school year or $1800 for calendar year, plus waiver of tuition fees. Student may enroll for combination of full course load with research.

Teaching Assistantships: Department of Speech. Starting September or February, half-time. Teach two sections of Principles of Speech, serve as drill-master for several sections of remedial voice and articulation drill course or serve as clinician in the Speech and Hearing Clinic. $1700 for the academic school year, plus waiver of tuition fees. Student may enroll for 10 hours of graduate courses per semester.

Clinical Assistantships: Starting September or February or Summer. Twenty hours per week of clinical assistance. $1700 for regular school year, $2040 for calendar year, plus waiver of tuition fees. Student may enroll for 10 hours of graduate course work per semester. Ten hours per week clinical assistantships also available. Student may enroll for 14 hours of graduate course work per semester. Address: M. D. Steer, Speech and Hearing Clinic, Purdue University, Lafayette, Indiana.

Southern Illinois University. Assistantships: Half-time teaching of Fundamentals of Speech while studying in the Department of Speech Correction, Pathology, and Audiology. $1350-$2160 plus remission of tuition fees for academic year. Additional summer quarter stipend and remission of tuition available. Graduate program of 12 quarter hours.

Clinical Assistantships: Speech Correction and Audiology. $1350-$2160 plus remission of tuition for half-time service during academic year. Additional summer quarter stipend and remission of tuition available. Graduate program of 12 quarter hours.

Research Assistantships: Speech Pathology, Speech Science, and Audiology. $1350-$2160 plus remission of tuition for half-time service during academic year. Additional summer quarter stipend and remission of tuition available. Graduate program of 12 quarter hours. For information on assistantships, address: I. P. Brackett, Department of Speech Correction, Pathology, and Audiology.

Fellowships: Provide room, board, and remission of tuition for quarter-time service. Address: I. Clark Davis, Director of Student Affairs.

Research Fellowships: Speech Pathology, Speech Science, and Audiology. $810-$1350 plus remission of tuition for nominal service during the academic year. Additional summer quarter stipend and remission of tuition available. Graduate program of 12 quarter hours. Address: Willis G. Swartz, Dean of the Graduate School.

Internships: Half-time graduate internship in Speech Correction. Twelve quarter hours of credit for teaching load in public school and a minimum of four hours of field study credit and eight hours of Saturday or evening course credit during academic year. $1200-$1800 for nine-month period. Address: Charles Neal, Director, Teacher Training.

Scholarships: Provide remission of tuition fees. Address: Willis G. Swartz, Dean of the Graduate School, Southern Illinois University, Carbondale, Illinois.

Equipment and Materials

Silent Spokesman: an Aid to the Speechless by W. W. Lessing is designed as a working tool and a language substitute for persons whose oral and written expression has been impaired or destroyed. This pamphlet is composed of items which indicate basic needs to which the aphasic can point, such as pictures of objects, lists of requests, names of the family and friends, time chart, key numbers, general statements, financial expressions, words of measure, alphabet. It is planned obviously for family members and attendants in order that tensions and pressures resulting from the lack of speech can be eased. Published by Hospital Topics, 30 W. Washington Street, Chicago 2, Illinois; price, $1.50.

The International Film Library of the

International Society for the Welfare of Cripples has a collection of 27 films from abroad which are available for loan. More than 30 countries are interested in this federation whose goal is the improvement and extension of services for disabled children and adults. ASHA members may be interested in two of the films: 'The Treatment of Cerebral Palsy in New Zealand' (60 minutes) and 'Work with Cerebral Palsied Children in Denmark' (10 minutes). Address: 701 First Avenue, New York 17, New York.

Toys . . . The Tools of Children, by Mrs. June Frantzen, is a 16-page booklet containing 75 color photographs of toys and a key-chart to aid parents, teachers and therapists in choosing toys to stimulate finger and arm coordinating skills for various age levels. Price, $1.00 per copy. Address: National Society for Crippled Children and Adults, Inc., 11 South La Salle Street, Chicago 3, Illinois.

The American University, Language Center, Washington, D. C., has released to Language Training Aids, 12101 Valleywood Drive, Silver Spring, Maryland, the world-wide distribution of the following tapes for teaching English as a foreign language:

Ameriphone Tapes. Dialogues about student life, everyday living, and getting around in the United States. Eight tapes. Speed, 7.5 ips. Price of complete set, $35.00, including textbook. Extra copies of text, $1.00 each.

K. C. Drills. Tapes accompany two volumes prepared for teaching English stress and intonation at the American Language Center of the American University. The dialogues deal with everyday living in the United States. Eight tapes. Speed, 7.5 ips. Complete set, $35.00, including texts. Extra copies of text, $1.60 per set.

P. D. Drills. Pronunciation drills for foreign students developed on the basis of contrasts in vowels, consonants, slurs, and intonation. Speed, 7.5 ips. Set with texts, $150.00. Extra copies of text, $2.00.

H. E. D. Drills. A series of lectures on American history. Eight tapes. Speed, 7.5 ips. Set with text, $35.00. Extra copies of text, 60¢. Address: Language Training Aids, 12101 Valleywood Drive, Silver Spring, Maryland.

An Oral Manometer, Model 360, has been developed by the Hunter Manufacturing Company in cooperation with the Department of Speech Pathology, State University of Iowa. This instrument, which measures oral pressures, was first used in connection with studies of those with cleft palate. Estimated price, $150.00. Address: The Hunter Manufacturing Company, 108 N. Linn Street, Iowa City, Iowa.

'Progress Report,' sponsored by the Sister Elizabeth Kenny Foundation, deals with the neurosurgical alleviation of hyperkinetic disorders such as Parkinsonism. It has been passed by the Committee on Medical Motion Pictures, American College of Surgeons, and may be borrowed without rental fee from United World Films, Inc. (Free Film Department), 542 South Dearborn Street, Chicago 5, Illinois.

A new recruitment film, 'Health Careers,' produced by the National Health Council and supported by the Equitable Life Assurance Society, is available without rental fee at the ASHA National Office. The film introduces its audience to more than 30 health workers. 'The Health Careers Guidebook,' to which the film is a companion-piece, covers 156 career opportunities in the health field. The film is planned to interest teen-agers from junior high school through the early college years, parents, teachers, counselors, community leaders, professional societies. It is a Wilding Picture Productions film, 16mm., sound, black and white, 13½ minutes. Address: ASHA National Office, 1001 Connecticut Avenue, N.W., Washington 6, D. C.

Louise Tracy's 'Foreword' to the *John Tracy Clinic Research Papers* indicates that the findings are available without delay to all interested people in the hope that some of the recorded answers may offer better methods of helping young children. In addition to the three papers listed in JSHD, May 1958, the following are in print: 'Linguistic Methodology in Lip Reading,' 'Facial Cues of Context in Lip Reading,' 'Patterns of Behavior in Children with Auditory Disorders,' 'Relationships between Selected Aptitude and Personality Tests and Lip Reading Ability,' 'Pilot Studies in Lip Reading.' These investigations have been supported by Research Grant 17, Office of Vocational Rehabilitation, except for the paper on 'Patterns of Behavior in Children with Auditory Disorders,' which was financed by the Bureau of Crippled Children

Services, Department of Public Health, State of California, and the Childrens' Bureau, U. S. Department of Health, Education, and Welfare.

National Education Association has published a brochure describing their publication of *Finding and Educating the Academically Talented Student*, a year-long project which culminated in an invitational conference of 200 educators in Washington, with James B. Conant, president emeritus of Harvard University, serving as chairman, and J. N. Bryan, Rutgers University, as project director. The NEA report describes the talented student as a rapid learner, a good organizer, a skillful thinker; as one who is creative, curious, capable of independent study; as one who may be anyone's child, hidden under any number of guises of indifference, under-achievement, delinquency. Recommendations are listed as: (1) a solid four-year course of academic courses, with students grouped in classes with others of like ability; (2) a rigorous counseling program, with guidance based on aptitude and/or intelligence test scores and school records; (3) special provisions within the regular school for advanced work; (4) advanced academic work for talented students. The publication will be available after June 1, 1958. Address: National Education Association, 1201 Sixteenth Street, N.W., Washington 4, D. C.

'How's Your Hearing,' Tapebook #2, by James M. Laing, is a new aural training aid for use in language and speech classes. The tape contains 30 minutes of music by the Lenny Herman Orchestra, reported to be good for screen testing of hearing; 33 tone pairs to test musical discrimination; 75 word pairs to test speech discrimination; plus an instruction booklet. Full 7-inch reel, 7½ ips; price, $9.95, postpaid. Address: Tapebook Department, Mooney-Rowan Publications, Severna Park, Md.

Every supervisor of a training program for speech and hearing therapy has left a trail of many discarded student evaluation forms that were once expected to give a perspective of young speech interns. Now the Division of Special Education of the the State of Ohio has published a five-page 'Guide for Evaluating Professional Growth and Teaching Effectiveness of the Speech and Hearing Therapist' by Elizabeth C. MacLearie. The assessment is the joint product of the therapist's opinion and the supervisor's estimate, covering personal and professional qualities and teaching performance.

The Bureau for Speech Improvement of New York City Public Schools is conducting, for the fourth year, a special speech program for retarded children. In the program, which is both developmental and corrective, teachers of Speech Improvement work with classroom teachers of the retarded. To assist the latter in conducting a developmental speech program, the Bureau has issued a handbook, 'Speech for the Retarded Child,' published by the Curriculum Division of the N.Y.C. Board of Education. Copies are available through the Division of Syllabi, 110 Livingston Street, Brooklyn, New York.

The March issue of the *Laryngoscope* carries the Proceedings of the last International Conference on Audiology. Extra copies of this issue can be obtained from S. Richard Silverman, Central Institute for the Deaf, 818 South Kingshighway, St. Louis 10, Missouri.

The Zenith Radio Corporation announced recently an eyeglass hearing aid that uses power from ordinary sunlight. Engineers report the amount of light received on a slightly overcast day will operate the device effectively. When light is insufficient, a tiny nickel-cadmium storage battery, weighing a fraction of an ounce, cuts in to operate the hearing aid. Bright sunlight will both operate the hearing aid and recharge the battery, according to Zenith officials.

The unit includes four tiny silicon sunpowered cells that convert the sun's rays directly into usable energy. The cells are wafer-thin slices of highly purified silicon intermixed with minute quantities of arsenic and boron. The cells are mounted under a plastic covering along the top of the temple bars of the eyeglass, where the cells are fully exposed to overhead light. The new power source is used with a four-transistor circuit.

The current 'Tape Recorder Directory Issue,' published by Audio Devices, Inc., 444 Madison Avenue, New York 22, New York, lists a new tape recorder which public school speech correctionists may find very useful. The recorder is Model T-1500 of the Wollensack Optical Company. According to the manufacturer's information, the frequency response at 3¾ inches per second

is from 40— 7,500 cycles (± 3 db); at 7½" /sec., from 40— 15,000 (± 3db). The following data are indicated: portable (weight, 18 pounds), two-speed, dual track recorder with 10-watt power output and interlocked keyboard control that can be operated in any sequence; flutter and wow, less than 0.3%; signal-to-noise, 48 db; overall distortion less than 0.8%; fast forward and rewind, 150"/sec., dual level record indicator, revolution index counter, instant stop level; automatic drive roller release when power switch is off; pre-amp output for Hi-Fi system; extension speaker jack; built-in automatic head demagnetization; remote foot control available. Price: $189.50.

The Fourth Edition of the *Audio-Visual Equipment Directory* has been published by National Audio-Visual Association, Inc., Fairfax, Virginia. Price, $4.25.

The Audio-Visual Equipment Manual, by James D. Finn, presents operating instructions for projection, sound reproduction, and reading control devices. Section 1 discusses projection, models of 16 mm. sound motion picture projectors, filmstrip and slide projectors; Section 2 pictures playbacks, public address systems, and classroom radio receivers; Section 3 presents the theory of tape recording and models of tape recorders; Section 4 discusses tachistoscopes and projective reading devices. Published by Dryden Press; price, $9.50.

A new flannelboard for use in the elementary grades has been designed by Arthur C. Stenius, Wayne University, Detroit, Michigan. The product is marketed by Visual Specialities Company, 7645 East Jefferson Street, Detroit 14, Michigan.

Beltone Hearing Aid Company has designed a new instrument to free hearing-handicapped children from being 'plugged into amplified sound.' The development is an auditory training unit which provides binaural hearing at ear level, as well as allowing complete mobility for pupils. The new unit, which will be used mainly in clinics and schools for the hard of hearing and deafened, is basically two high-powered wide band hearing aids built into a headset, which weighs 6¼ ounces; is self-contained and self-powered, eliminating any type of plugging. Neither the teacher nor the child is hindered by talking into a microphone. Address: Beltone Hearing Aid Company, 2900 West 36th Street, Chicago, Illinois.

The National Diagnostor, a desk or wall unit which holds two diagnostic lamps and provides them with controlled power through retractable cords, is being put on the market by National Electric Instrument Division of Engelhard Industries, Inc. Reeling in and out automatically, the 7-foot cords can be locked at any point along their length. After the Diagnostor as a unit has been turned on, the power going to each instrument is controlled separately by means of two illuminated dials. Neither instrument lamp actually goes on, however, until the instrument is lifted from its socket. The unit is available complete with instruments, without instruments, or with adapters for instruments of other manufacture. Address: Charles Mathieu & Co., 509 Madison Avenue, New York 22, New York.

Two companion studies have been published which offer excellent summaries of research on mental retardation: Part I, 'Psychological and Cultural Problems in Mental Subnormality,' *Genetic Psychology Monographs*, February 1958, by Seymour Sarason and Thomas Gladwin; Part II, 'The Prevention of Mental Retardation,' *A.M.A. Journal of Diseases of Children*, January 1958, by Richard L. Masland. The latter study was sponsored by the National Association for Retarded Children, Inc.

'Hearing Tests for School Children' is a booklet which outlines step-by-step the procedure of a hearing conservation program. A five-point program is recommended and discussed. Copies are available without charge to school administrators. Address: Beltone Hearing Aid Company, 2900 West 36th Street, Chicago, Illinois.

'Education '57,' a new documentary motion picture, is the first filmed report to the American people by the U. S. Commissioner of Education, Lawrence G. Derthrick. The film visualizes for the public some of the alarming facts about educational problems today: 95,000 teachers resigned in 1957; only 10 per cent of parents with school age children attended P.T.A. meetings; 135,000 public school faculty vacancies occurred; shortage of 159,000 classrooms in 1957 existed; of every 10 high school children, four did not finish, three went to col-

lege; and of the last three, only one and one-half will graduate.

Special distribution plans for P.T.A. groups. Address: U. S. Government Films, United World Films, Inc. (Educational Department), 1445 Park Avenue, New York 19, New York.

The above film will no doubt point up Mr. Derthrick's educational implications in his speech, 'The Stolen Years' (now in brochure form), in which he warns citizens that elementary children alone can lose almost two years of schooling. In denying children this time, the public schools are robbing them of learning, serenity, and guidance. Significantly, Mr. Derthrick reports that something has to yield in a school day cut-back to four hours: speech correction, remedial reading, music, health programs, supervised study. Address: Lawrence Derthrick, U. S. Office of Education, Washington, D. C.

The newest study in a series of publications on physically handicapped children in New York City schools is now available: 'The Integration of Deaf Children in a Hearing Class,' *Bureau of Educational Research*, No. 36, March 1956. Academic achievement, social adjustment, attitudes of hearing children and reactions of participating teachers to integrated classes are evaluated as well as recommendations for continuance for an additional year. The study was prepared by Joseph Justman and others.

Word card games, suitable for speech development and therapy, have been published by Ideal Speech Materials, 6218 South Albany, Chicago 29, Illinois. Each game is priced at 65¢.

We, The Handicapped, Inc., a non-profit pioneer in the field of research for devices and techniques which compensate for a lost physical function, announces its new publications program of specialized manuals for the handicapped, titled 'Tools for Living.' Each of the manuals in this series will deal with a particular type of disability and describe appliances and techniques, as well as offer specialized information on the functional activities of daily living. Twenty-four years of research have made this organization a clearing house of helpful ideas for the disabled. Address: 15327 San Juan Drive, Detroit 38, Michigan.

A recruitment brochure, 'My Future,' should interest career minded high school seniors and also those entering universities. Some 12 pictures capitalize on therapy situations for interest. Robert Douglass, Los Angeles State College is responsible for providing another recruitment idea. Price, $5.00 per 100 copies.

A new device, 'Spin-a-test Blackboard Spinner,' introduces a new technique for intensive practice in articulation. The spinner, which is 15 inches long, attaches itself readily to the blackboard, draws circles or radial lines, and can be used as a pointer for words written around the lines. It is constructed of high impact styrene, with a tenacious 3½-inch vacuum cup on the under side, and a counterbalance to support the indicator arm. Various sized circles may be drawn. Price, $4.95. Address: Spin-a-test Company, Dept. SH, Post Office Box 241, Hermosa Beach, California.